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CHAPTER 13

CAREFUL-EDUCATIONAL TECHNOLOGIES IN CHILD HEALTH: A TREND IN THESES AND DISSERTATIONS OF BRAZILIAN NURSES

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ABSTRACT

Objective: to know the trend of theses and dissertations about the careful-educational technologies used in Child Health by Brazilian nurses. Method: This is a narrative review study. The search was guided by the review question: What is the trend of the theses and dissertations that were developed by Brazilian nurses about the Careful-educational Technologies used in Child Health? The data search took place in June 2024 in the Theses and Dissertations Bank of the Coordination for the Improvement of Higher Education Personnel (CAPES) and in the Digital Library of Theses and Dissertations (BDTD), based on different search strategies for each source, involving the descriptors: nursing, "educational technology" and "child health" and their alternative terms. The number of searches resulted in 315 studies. 12 studies were excluded because they could not be applied in the context of Primary Health Care actions, and 267 that did not answer or were not related to the review question. 8 duplicate studies were counted only once. Thus, the corpus of the research was composed of 28 productions. Among these, there are 24 dissertations and four theses. Results: The Careful-Educational Technologies used in Child Health focused on the elaboration of instruments, followed by booklets, websites, booklets, educational videos, applications, serial album, ebook, toy making and realistic simulation scenarios of situations that require attention to the child. It can be observed that there is still a predominance of technologies produced with printed educational materials, but in recent years it has been observed the construction of materials for use in online and download form, ratifying the current technological scenario in which we are inserted. Final considerations: It is considered that such technologies enable quick and easy access, and can optimize the health care and education actions of nursing professionals involved in child care. It is suggested that new studies be developed that address the theme, in favor of the constant improvement of Child Health Nursing conducts, and that existing technologies be implemented.

Keywords: Nursing. Educational Technology. Child Health.

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INTRODUCTION

Children's health represents a priority field in the scope of health care for populations, as assisting children implies meeting the essential needs for their development (GAÍVA; ALVES; MONTESCHIO, 2019). In this perspective, nurses are considered protagonists in child care, as they carry out actions to monitor healthy child development and promote comprehensive care, based on health education for family members or their caregivers (SANTOS et al., 2021).

Over the years, nurses have intensified the use of technologies, as they can help their actions with positive results, presenting themselves in varied formats with resources that can be playful, attractive and that include the co-participation of the means used. This scenario contemplates one of the great possibilities of professional performance in nursing, of low cost and great effectiveness in the health and well-being of the assisted population (MUNIZ; BIKE; SOUZA, 2023).

The use of technologies is an important tool to guide the conduction of nursing knowledge. Technologies are understood as products or processes that allow the involvement of professionals in the provision of effective care to the user and in the development of the health education process, contributing to the provision of relevant information to the target audience (NIETSCHE; TEIXEIRA; MEDEIROS, 2014).

In this context, the concept of Care-Educational Technologies (TBI) emerges, which aim to give meaning to a set of scientific and daily knowledge of Nursing professionals, involving the process of caring/educating and educating/caring for oneself and the other, based on the principles of human praxis (SALBEGO, 2016).

In this way, TCE presents itself as an innovative possibility to conceive and justify technological products and processes developed, validated and/or used, from a perspective that merely transcends its conception as educational or assistance technologies in isolation, that is, without the interrelationship between caring and educating. Thus, TBI occurs when human beings manifest levels of consciousness during their professional praxis (SALBEGO et al., 2018). In this study, the term TBI will be addressed due to the breadth and integration of functions that the concept presents. Thus, the objective is **to know the trend of theses and dissertations about the careful-educational technologies used in Child Health by Brazilian nurses.**

METHOD

This is a narrative review study which comprises the characterization of the productions on the content addressed, identifying trends in relation to the theme. It seeks to

describe and broadly discuss the state of knowledge on a given subject, contributing to the elaboration of concepts in the health area, which can contribute to improvements in care actions (BRUM et al., 2016).

For this purpose, the review question was defined: What is the trend of the theses and dissertations that were developed by Brazilian nurses about the Careful-educational Technologies used in Child Health? The bibliographic survey was carried out in May 2024. The search strategies were based on the combination of Health Sciences Descriptors (DeCs) and keywords and their variations in numerous tests in the Catalog of Theses and Dissertations of the Portal of the Coordination for the Improvement of Higher Education Personnel (CAPES) and the Digital Library of Theses and Dissertations (BDTD), and the searches that guide this research were defined. through the result of the largest number of studies that deal with the theme in question, as presented in Chart 1.

Chart 1 – Search strategies used in the Narrative Review

Databases	Search Strategies
CAPES Thesis and Dissertation Catalog	nursing OR nurse OR nurse OR "educational technology" OR "health technology" OR "software application" OR "audio-visual resources" OR "mobile applications" OR "mobile devices" OR website OR videos OR "educational booklet" OR booklet OR "serial album" OR banner OR "construction and validation" AND "child health" OR "child health" OR "child care" OR "child care" OR childcare
Digital Library of Theses and Dissertations (BDTD)	(nursing OR nurse OR nurses OR nurse OR nurses) AND ("careful-educational technology" OR "educational technology" OR "health technology" OR "software application" OR "audio-visual resources" OR "mobile applications" OR "mobile devices" OR "health education" OR validation OR "content validation") AND ("child health" OR "child health" OR "child care" OR "child care" OR childcare)

Fonte: BUGS, C. V. M., 2024.

For the selection of studies, the following inclusion criteria were adopted: theses and dissertations prepared by Brazilian nurses that answered the review question, and that the technology can be applied in Child Health in the context of Primary Health Care actions. No time frame was used. As this was a study that involved only scientific texts, there was no need for approval by a Research Ethics Committee.

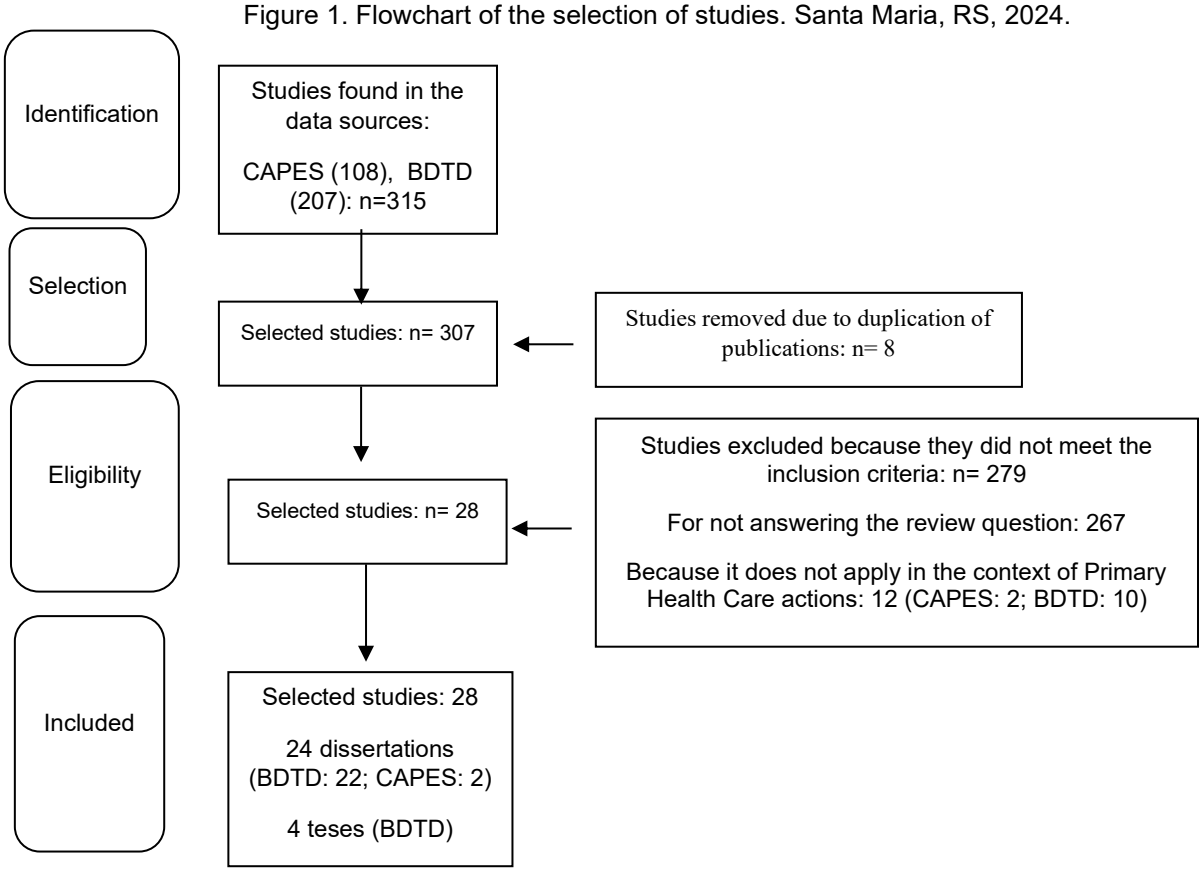
Subsequently, based on a careful reading of the titles, abstracts and keywords, a database was organized in the Microsoft Excel® program to extract information from the studies. Afterwards, the pre-selected studies were read in full in order to extract the following variables: title, author, year of publication, graduate program and institution,

objectives, method used and main results, these data are separated into two synoptic tables presented in the results. In this way, it was sought to understand the synthesis of knowledge for the construction of the review. In addition, the ethical aspects and definitions presented by the authors were respected, which were duly cited and referenced.

RESULTS

The search began with 315 studies. Eight studies were duplicates and counted only once, resulting in 307 studies. Of these, 12 were excluded because they could not be applied in the context of Primary Health Care actions, and 267 because they did not answer the review question. Thus, 28 studies were selected that made up the corpus of the research. The flowchart for the selection of studies is presented below (Figure 1).

Figure 1. Flowchart of the selection of studies. Santa Maria, RS, 2024.



Source: Survey data, 2024.

To describe the selected productions, a synoptic table was prepared (Chart 2) containing the following information: type of study (thesis or dissertation) and data source; name of the author; year of realization; graduate program and home institution. The studies were coded by the letter "D" in the dissertation case and the letter "T" in the thesis, followed by ordered cardinal numbers.

Table 2. Synoptic table. Selected productions on the theme Caring-educational technologies in Child Health.

Type/Source	Title	Author	Year	Graduate Program	Institution
D1 BDTD	Construction and validation of an instrument for systematizing nursing care for children with allergy to cow's milk protein	Sabrina Ferreira da Silva	2021	Professional Master's Degree in Technology and Innovation in Nursing	University of Fortaleza – UNIFOR
D2 BDTD	Technology for early screening of autism in nursing consultations in primary care	Cintia Soares Cruz de Castro	2021	Professional Master of Science in Nursing Technology and Innovation	University of Fortaleza – UNIFOR
D3 BDTD	Development of technology to support nursing consultation in childcare	Fernanda Rocha Honório de Abreu	2019	Professional Master of Science in Nursing Technology and Innovation	University of Fortaleza – UNIFOR
D4 BDTD	Construction and validation of a website on premature care	Ana Paula de Souza Tenório	2016	Postgraduate Degree in Child and Adolescent Health at the Health Sciences Center	Federal University of Pernambuco
D5 BDTD	Immunization of children with autism spectrum disorder: educational material for nursing staff	Aurora Tontini de Araujo	2024	Graduate Program in Teaching Master's Level/ PPGEN	State University of Western Paraná/UNIOESTE – Foz do Iguaçu Campus
D6 BDTD	Construction and validation of a playful educational booklet to carry out the preoperative nursing visit	Marcela Cristina Machado Zanqueta Vasques	2020	Graduate Program Botucatu School of Medicine	São Paulo State University "Júlio de Mesquita Filho"
D7 BDTD	Technology for Guidance of Family/Caregiver of Children Undergoing Surgical Procedures	Renata Rodrigues da Luz	2022	Graduate Program in Health Care Practice, Health Sciences Sector	Federal University of Paraná
D8 BDTD	First home visit to the newborn: production of assistive technology	Ginaina Catia de Prá Oliveira	2019	Graduate Program in Professional Nursing, Health Sciences Sector	Federal University of Paraná
D9 BDTD	Elaboration and validation of videos on first aid: production based on the demand for knowledge of teachers and early childhood education staff	Priscila da Silva Miranda	2022	Academic Program in Health Care Sciences at the Aurora Afonso Costa School of Nursing	Fluminense Federal University
D10 BDTD	Elaboration of a booklet for caregivers of pediatric tracheostomized patients in the Western Brazilian Amazon: a methodological study	Iunaira Cavalcante Pereira	2023	Professional Master's Degree in Clinical Nursing/MPEA	Aurora de Afonso Costa School of Nursing - Fluminense Federal University/UFF
D11 BDTD	Ebook as an educational technology in teaching the safe care of children with cow's milk protein allergy and other allergies in the school environment	Débora Cristina Mendonça de Andrade	2020	Professional Master's Program in Health Education at the Aurora de Afonso Costa School of Nursing	Fluminense Federal University/UFF
D12 BDTD	Construction and validation of a maternal self-efficacy scale in infant feeding	Viviane Maria Pereira de Carvalho Magalhães	2018	Graduate Nursing Degree, Health Sciences Center	Federal University of Pernambuco
D13 BDTD	Construction and validation of content and semantics of the scale of perception of	Lígia Simões Ferreira	2020	Graduate Program in Nursing	Federal University of Mato Grosso do Sul

	family self-efficacy in the home care of children on peritoneal dialysis				
D14 BDTD	Construction and validation of a toy and history for the care of children submitted to cardiac catheterization in a therapeutic toy session	Rosalia Daniela Medeiros da Silva	2015	Graduate Nursing Degree, Health Sciences Center	Federal University of Pernambuco
D15 BDTD	Cross-cultural adaptation of *the Self-efficacy in Infant Care Scale* for Brazil and content validation of the Brazilian version	Talita Helena Monteiro de Moura	2015	Graduate Nursing Degree, Health Sciences Center	Federal University of Pernambuco
D16 BDTD	Development and validation of an instrument for the assessment of newborns in the first week of comprehensive health	Luana Amaral Alpirez	2014	Associate Master's Program in Nursing UFAM-UEPA	Federal University of Amazonas
D17 BDTD	Upper airway infections: construction and validation of educational technology with early childhood educators	Anne Grace Andrade da Cunha	2014	Graduate Program in Nursing	Federal University of Amazonas, in Broad Association with the University of the State of Pará
D18 BDTD	Clinical simulation in the preparation of family members of Children with tracheostomy in the process of discharge Hospital	Fernanda Priscila Mello Almeida da Silva	2022	Masters Nursing Professional Healthcare	Universidade Federal Fluminense/UFF - RJ
D19 BDTD	Educational technology for learning Lactation Physiology: creation and validation of visual content	Polyana de Lima Ribeiro	2019	Graduate Program in Nursing	Federal University of Santa Maria (UFSM) - RS
D20 BDTD	Mobile application on the first nursing consultation with the newborn in primary care: construction and validation	Beatriz Molina Carvalho	2021	Programama Post-Graduation in Public Health Nursing	University of São Paulo at Ribeirão Preto College of Nursing
D21 BDTD	Renal Ped: prototype of *a serious game* for children on peritoneal dialysis	Nathália Lázaro Rocha	2022	Programama Post-Graduation in Public Health Nursing	University of São Paulo at Ribeirão Preto College of Nursing
D22 BDTD	Prevention of child overweight in Primary Care: construction and validation of a serial album	Mirna Ferré Fontão Más	2015	Professional Master's Degree Graduate Program in Primary Health Care and SUS	University of São Paulo School of Nursing
D23 CAPES	Construction and validation of a child care manual in Home mechanical ventilation for nurses of Primary Health Care	Francisca Emanuelle Sales Eugênio Bezerra	2019	Master's Degree Course Child and Child Health Professional Adolescent	Health Sciences Center of the State University of Ceará
D24 CAPES	Construction and validation of an educational booklet for the management and Driving a child with neurological sequelae caused for cancer	Samira de Morais Sousa	2020	Master's Degree Course Professional in Health Management Program Postgraduate Program in Collective Health at Health Sciences Center	University State of Ceará
T1 BDTD	Child Health Handbook in the context of Primary Care:	Camila Padilha Barbosa	2018	Graduate Program	Federal University of Pernambuco

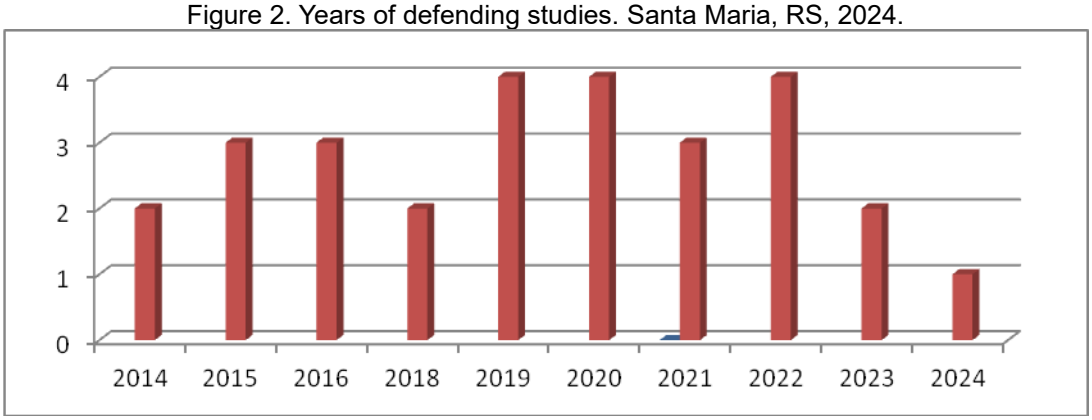
	Development and evaluation of educational software			in Child and Adolescent Health Center of Health Sciences	
T2 BDTD	Promotion of the functional development of children born prematurely: organization of theoretical and operational bases and construction of a family support guide	Rayla Amaral Lemos	2016	Graduate Program in Nursing	University of São Paulo School of Nursing
T3 BDTD	Validation of educational booklets for family members of children/adolescents with leukemia for home care	Cicero Ivan Alcantara Costa	2023	Graduate Program in Nursing	State University of Rio de Janeiro
T4 BDTD	*Prototype software* for monitoring child growth and development based on the International Classification of Nursing Practices (ICNP)	Cilene Nunes Dantas	2016	Health Sciences Center Graduate Nursing Program	Federal University of Rio Grande do Norte

Source: Survey Data, 2024.

PROFILE OF STUDIES RELATED TO THE THEME OF CAREFUL-EDUCATIONAL TECHNOLOGIES IN CHILD HEALTH

Among the 28 studies analyzed, 24 (85.71%) are master's dissertations and four (14.29%) are doctoral theses. The corpus of this research was composed of works defended between the years 2014 and 2024, with emphasis on the years 2019, 2020 and 2022 with four (14.28%) studies each (Figure 2). Thus, it is observed that the study of this theme can be considered growing and current, considering that the number of productions has advanced in recent years.

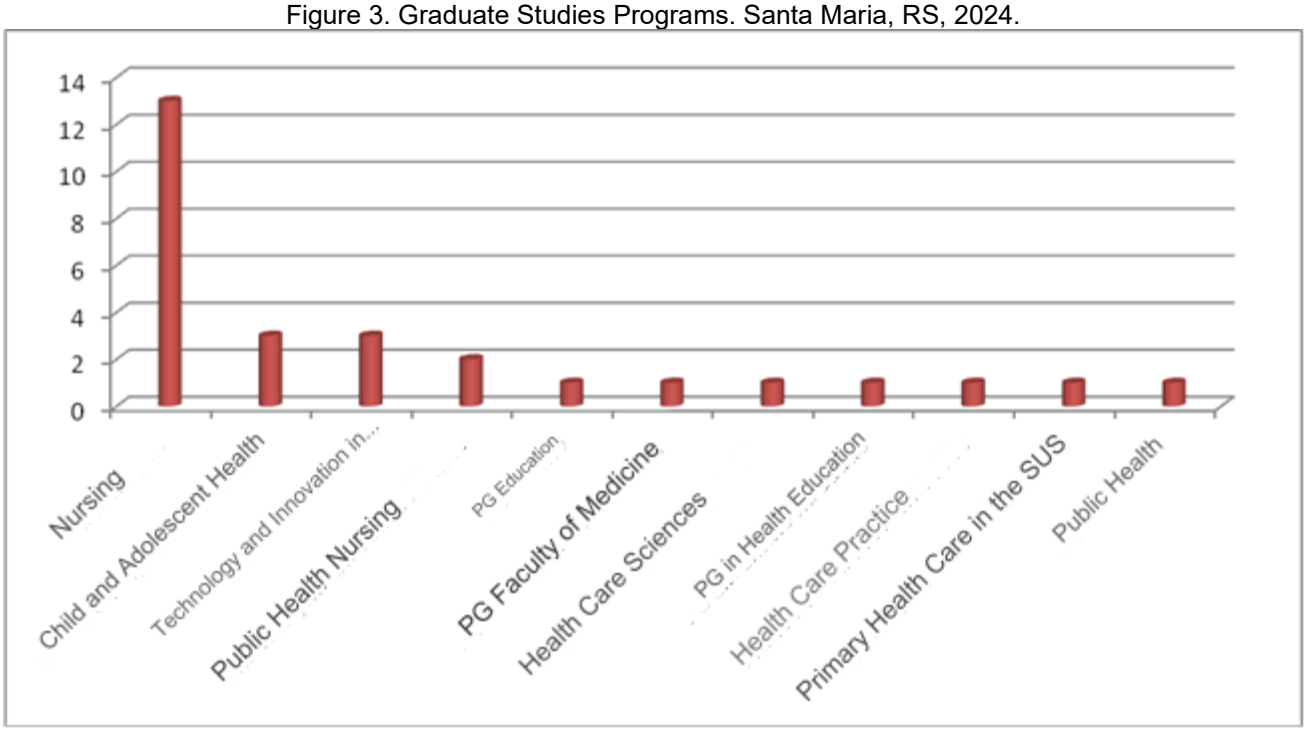
Figure 2. Years of defending studies. Santa Maria, RS, 2024.



Source: Survey data, 2024.

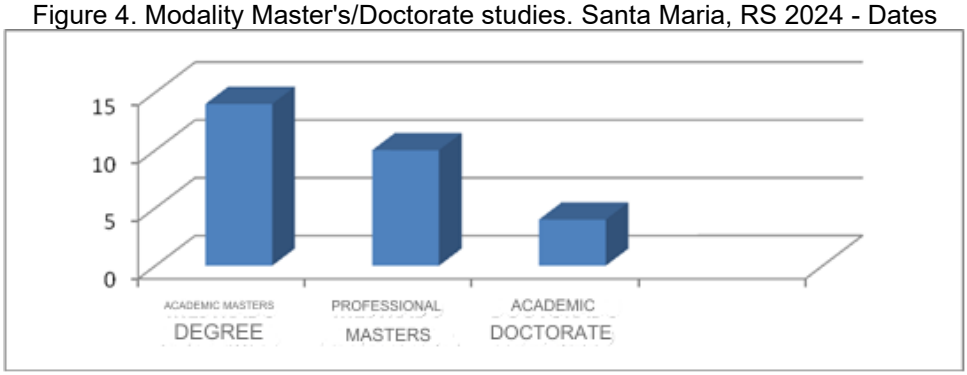
The theses and dissertations are from the most diverse graduate programs, however, most of the studies, specifically 13 of them (46.42%) correspond to Nursing Programs (Figure 3). Also noteworthy is the predominance of studies in the Academic Master's modality with 14 (50%), followed by 10 (35.71%) Professional Master's studies and, finally, four (14.28%) Academic Doctorate studies (Figure 4).

Figure 3. Graduate Studies Programs. Santa Maria, RS, 2024.



Source: Survey data, 2024.

Figure 4. Modality Master's/Doctorate studies. Santa Maria, RS 2024 - Dates



Source: Survey data, 2024.

Regarding the Brazilian geographic region of the universities of the selected research, the predominance was in the northeast region with 11 (39.28%) studies, followed by the southeast region with 10 (35.71%) studies. The southern region included the elaboration of four (14.28%) studies; the North region with two (7.14%) studies and, finally, the Central-West region with one (3.57%) study.

Chart 3 presents the details of the dissertations and theses that made up the corpus of the study.

Table 3. Dissertations and theses according to objective, method and main results. Santa Maria, RS, 2024.

Studies	Objectives	Methodology	Main results
D1 BDTD	**General:** To build and validate an instrument for the Systematization of Nursing Care for children with Milk Protein Allergy (CMPA) attended in the Childcare consultation in Primary Care. **Specific:** - Identify the Nursing Diagnoses in children with Cow's Milk Protein Allergy; -Validate the elaborate technology for content and appearance with expert judges.	Methodological Study. The study was developed in five phases: 1) Integrative literature review; 2) Search in medical records and definition of the most prevalent diagnoses; 3) Construction of the 1st version of the Technology with emphasis on the Systematization of Nursing Care for children with CMPA; 4) Validation of appearance and content by expert judges; 5) Redesign of the technology and elaboration of the 2nd version. The instrument was validated by 16 expert judges.	The construction process resulted in the elaboration of the first version of the technology, which was entitled "Nursing care plan for children with suspected or diagnosed CMPA". This version was built in the Word program, totaling six pages. It consists of a header, for recording pertinent information such as: Name; Date of birth; Address; sex; Age; Weight; Stature. It was found necessary to create a data identification of the child's guardian and investigation of allergies in the family. After information about the nursing history, investigation of psychosocial and psychospiritual needs, notes about the performance of the physical examination. It has a first column with the number of the Nursing Diagnosis (ND); a second column with the defining characteristics of the ND; a third column with the nursing diagnosis statement and the related factors or risk factors; and a fourth column with nursing interventions and nursing actions. The technology was considered valid, as the total Agreement Index (CI) of the instrument was 92.2%.
D2 BDTD	**General:** To design and validate a technology to support the Nursing Consultation for children with Autism Spectrum Disorder for early screening. **Specific:** - Encourage the use of the Systematization of Nursing Care in Childcare in the early screening of Autism Spectrum Disorder; - List the main characteristics of Autism Spectrum Disorder; -Validate the technology with specialists in the area of Child Health.	Methodological and Descriptive Study. The study was developed in three stages: 1) Integrative literature review 2) Construction of the content of the technology 3) Validation of the content and appearance of the technology Question investigated in the Integrative Review: What are the characteristics of child development for early screening of Autism Spectrum Disorder (ASD)? Validation carried out by 15 Experts.	The structured form brings content that proposes the early screening of ASD and the Systematization of Nursing Care (NCS) to children in PHC. The instrument was divided into three parts: the first is composed of the Nursing History, the second is the Cognitive Development Assessment and the third is the NCS. The sum of all Content Validity Indexes (CVIs) was 0.90, which evidenced the effectiveness of the technology. The instrument as a way to facilitate the screening of childhood Autism.

D3 BDTD	Develop a software to support nursing consultation in childcare.	Methodological Study. For the development of the scientific content of the software, a Narrative Review was carried out in the main publications of the Brazilian Ministry of Health, books, websites, protocols, publications in journals, involving the main nursing actions in the face of the Childcare consultation in Primary Health Care and the use of NCS. To idealize the software, meetings were held with professionals from the Technology and Innovation sector. After consolidating the literature and defining theoretical components, the development of screens and the software programming process began.	The technology developed was named Childcare in Focus. It is presented with registration screens, terms of use, welcome, in addition to initial screens and spaces for anamnesis, physical examination, child growth and development, feeding, hygiene, immunization, sleep and rest, accident prevention, Supplementation and Complementary Exams, Care Plan (Nursing Diagnoses, intervention and evaluation), ending with a final report and time spent to carry out the consultation. The technology has health education strategies and possible guidelines that the nurse can be evaluating in the consultation and, if necessary, send to the parents/guardian's cell phones in the consultation by text message. It offers tips and guidance on the professional's conduct, care plan with nursing diagnoses and in case of possible doubts with nursing management and care. The study was not validated.
D4 BDTD	Build a website about care for premature infants for family guidance and perform website content validation.	Methodological Study. It was carried out in two phases, starting with the process of building the website on care for premature infants to guide the family and later with the validation of the website's content by nurses. Website construction and development stages: 1st Stage: Definition Website objectives: to provide guidance on the care that family members should have with premature infants. Target audience: parents and family members of the premature baby. Content: theoretical basis through the educational booklet "Care for the premature baby: guidelines for the family"; Manuals and Notebooks of Care of the Ministry of Health; Universal Declaration of Rights for Premature Infants and scientific articles. 2nd Stage: Architecture Organization of information: grouping of information, identification and separation into main subjects. Step 3: Design Selection of the type and size of the font used, revision of texts, color	The construction of the website lasted an average of fifteen months and had a total of fifteen pages. All pages of the website followed the same standardization in relation to colors, the site's logo, the menu, the text, the size and the color of the font as its layout. The use of a website to guide parents and family members about the care provided to premature infants is a facilitator for the performance of health education activities by nurses, as well as a means of communication that is easily accessible by the premature infant's relatives, especially by cell phone, which is globalized and fast, offering up-to-date, reliable information and providing the sharing of such information.

		control, insertion of images and audio indication for accessibility. Design carried out by a web design professional. 4th Stage: Implementation Hosting of the website content on an institutional server of UFPE at the URL: http://www.ideias.ufpe.br/prematuro Finalization and integration of all pages. Verification of all links and analysis of the interface and the test of the navigation of the website carried out by the author. 34 nurses evaluated the technology.	
D5 BDTD	**General:** Develop educational material to strengthen care practices in the immunization process of autistic children. **Specific:** - To analyze the experiences and strategies used by the nursing team with regard to the immunization program and health of autistic children. - To portray the perceptions of nursing professionals about the immunization process in children with Autism Spectrum Disorder. - Describe the process of development of the educational booklet in the face of the immunization process and health of the autistic child.	Applied Research. Study Scenario: The city of Foz do Iguaçu, is located in the extreme west of the state of Paraná. Study population: 36 nursing professionals who care for children diagnosed with Autism Spectrum Disorder (ASD) in the vaccination rooms of the Basic Health Units (UBS). The study followed two stages: Step I: Elicitation of requirements. Stage II: Elaboration of Educational Technology. Stage I: contemplated the subsidies used for the structuring of the Educational Technology, based on a search in the literature. Stage II: Elaboration of Educational Technology The technology was built using the Canva Pro® tool, containing information/evidence about autism and the childhood immunization process. This evidence is presented in various formats, all of an informative nature, containing: texts, figures, images, as well as guidelines for nursing professionals, seeking the use of clear, objective and easy-to-understand language.	An educational booklet was built that can be used as an informative technological resource to help and encourage the promotion of the health of autistic children in health units. The curricular organization phase relied on pertinent information found in the social representations of nursing professionals, such as: What is autism?; What are the support levels for ASD?; The use of visual cues to assist in the immunization process of autistic people at the UBS, among other important issues, such as the description of some characteristics presented by autistic people. The research contributes as an innovation of care in the process of immunization of children with ASD for nursing professionals and multiprofessional teams, as they will be able to use the content and the booklet in daily practice with the patient and family, strengthening the professional/autistic/family bond.
D6 BDTD	Construct and validate a playful educational material to guide children aged 7 to 12 years and their families during the preoperative nursing visit.	This is a methodological study with non-probabilistic sampling. Steps: -Systematization of the scientific content having as theoretical reference the conceptual model of the Systematization of Perioperative Nursing Care (SAEP) proposed by Castellanos and Jouclas. In addition, an integrative literature review was carried out and the researchers' expertise in the theme was considered; -Creation of illustrations by the Center for Distance Education and Health Information Technologies;	- A printed educational material was prepared and validated, developed in Portuguese, has 21 pages and is available free of charge in printed format, it is an instrument proposed as a guide for nurses to transmit health education to children who will be admitted to the operating room. -The educational material developed in this research aims to offer nurses a playful tool to guide children and their families about the perioperative period, with a

		-A playful educational material, such as a comic book, was developed to address the perioperative period, including the surgical team, the operating room and routines, equipment and the main procedures performed in the surgical anesthetic act. -Validation of educational material by judges. Inclusion Criteria: Nurses and physicians (surgeons and anesthesiologists) with experience in teaching, research, or assisting in children's surgery (surgery, anesthesiology, or pediatrics). - Improvement and revision of illustrations by a company specialized in design. -Validation of educational material by parents and children who have undergone surgery. Inclusion Criteria: Parents who have accompanied a child aged 7 to 12 years (belong to the school age group), and school-age children aged 7 to 12 years who have had elective surgery for the first time and are discharged from the hospital. -19 judges participated in the content validation: 14 nurses and 05 physicians, 07 doctors, 04 with postdoctoral degrees and 03 associate professors. 22 mothers participated in face validation.	view to minimizing the difficulties faced, especially in the preoperative period and in the admission to the operating room. -The educational material can favor the familiarization of both children and their guardians with the hospital and surgical context and minimize the possible difficulties experienced during hospitalization. -The educational material is an instrument proposed as a guide so that nurses can transmit health education to children who will be admitted to the operating room.
D7 BDTD	**General:** Develop audiovisual technology for pre- and postoperative guidance for family members/caregivers of children undergoing surgical procedures. **Specific:** To evaluate the technology developed with a group of health professionals involved in the care of children undergoing surgery and the target audience, family members/caregivers of children who underwent surgery.	Applied methodological research of technological production, developed in three phases and eight stages. The first phase - pre-production that included stage 1, called exploratory, defined the objective of the technology to be developed, the type of technology (2D animation videos), the elaboration of the script for the production of the videos, based on the scientific literature. The second phase - production, included stage 2, referring to the validation of the content of the script by a group of judges (nurses, surgeons and anesthesiologists); Stage 3, in which the Storyboard was elaborated; Step 4, corresponding to the selection of images and animation; Stage 5, in which the recording of the narrations took place; Step 6, the videos are edited. In the third phase - post-production, stages 7 and 8 were included, in which the evaluations of the videos were carried out by the group of judges and the target audience. The videos were evaluated by 23 health professionals (GROUP I)	The content for the construction of the script of the videos, that is, the main pre and postoperative care of pediatric surgeries, as mentioned, was based on the literature review and the Guidelines for Practice in Surgical Nursing and Processing of Health Products. Four videos were edited, with an average duration of two minutes and 34 seconds, the longest of which was three minutes and 22 segundos.com the contents about: Understanding the operating room; Surgery and Anesthesia; Care for the child before surgery; Care of the child after surgery. The technology developed has the potential to contribute to the health education process, guiding the family/caregiver of children undergoing surgical procedures, in relation to the pre- and postoperative care of pediatric surgeries, according to the evaluators.

		involved with pediatric surgical procedures, who also participated in the validation of the script content in the video production phase. GROUP II was composed of seven family members/caregivers of children undergoing elective surgical procedures, who participated in the evaluation of the satisfaction of the videos.	
D8 BDTD	**General:** Develop an assistive technology to support the first Home Visit to the newborn and family. **Specific:** - To identify the difficulties and facilities of nurses and Community Health Agents regarding the realization of the first Home Visit to the newborn, in the municipality of Pitanga, Paraná; - To build with health professionals an assistance technology applicable to the home visit of the newborn and family; - Validate the assistive technology applicable to the home visit of the newborn and family; - Train Community Health Agents to apply assistance technology.	Methodological Research, with a mixed approach, guided by the Methodology of Problematization with the Arco de Maguerez, composed of five stages: 1 - Observation of reality and definition of a problem; 2 - Key points; 3 – Theorizing; 4 - Hypotheses of solution; 5 - Application to reality. 11 nurses, 2 physicians and 81 Community Health Agents working in Primary Health Care in Pitanga-PR participated in the research. After defining the content of the technology through workshops, it was validated by the Content Validation Index, with the concomitant use of the Likert scale, to issue the evaluators' judgment.	The Assistive Technology was an instrument to guide the first home visit to the newborn and family. It was built based on scientific literature and meetings between health professionals to reflect on the literature and the context, validated and registered for use in the Municipality, later the CHWs were trained for use, as a proposal to qualify the performance of the first HV to the NB in Pitanga-PR. Thinking about the continuation of care and also about the qualification of care, it was agreed with the CHWs that after filling out the Technology, they should be sent to the nurse of the reference team to be attached to the child's medical record.
D9 BDTD	-Identify the experience of early childhood education teachers and staff in providing first aid care to children; - Describe the care provided by teachers and employees in the face of accidents in the school context; - List the contents considered necessary by teachers and staff for the preparation of an educational video on first aid to children in the school environment; - Develop an educational video on first aid care for children in the school environment; -Validate educational video on first aid to children in the school	Methodological research for the elaboration and validation of educational technology in video format. The study was carried out at the Application College of a Federal University, located in the state of Rio de Janeiro. The development of the research was carried out in 6 stages: 1st Stage - Search for themes: field research with teachers and employees, so that the themes and content for the composition of the educational video could be recognized and listed. 2nd Stage-Theoretical Study: Theoretical foundation of the educational video. This stage was intended to explore the existing literature in manuals, scientific articles, guidelines and expert guidance on child first aid care. 3rd Stage - Elaboration of the Educational Video: In this stage, the information obtained in the interviews	The educational videos prepared can be used in the educational processes developed for teachers and employees, as well as be made available for consultation when they need to update their knowledge or clarify doubts. In order to ensure essential care in child health problems in the school context. During the preparation of the videos, essential care was highlighted, as well as actions that are harmful to the child and that can cause worsening of their condition. After this stage, the videos were validated with expert judges in the study area, all of whom achieved high levels of agreement: choking (98%), falling (99%) and seizure (98%).

	environment with expert judges and target audience.	and literature contributed to subsidize the content of the educational video. 4th Stage – Validation of the educational video with the expert judges: The validation stage provided a detailed evaluation of the content that makes up the instrument. 5th Stage – Adequacy of the educational video: suggestions for video adjustments. 6th Stage: Validation of the Video with the target audience: the other professionals of the school (teachers and employees) who did not participate in the interview were invited. Participants in the field research: 13 professionals who make up the school team, belonging to the educational segment called Early Childhood Education. Expert judges: 17 professionals, including 13 nurses, 2 pediatricians, 2 social communicators. Validation with the target audience: 15 professionals working in early childhood education, of which 2 are librarians, 2 are student mediators, 2 teachers, 1 janitor, 1 educational agent, 1 cook, 1 doorkeeper, 1 general services assistant, 1 psychologist, 1 social worker, 1 administration assistant.	The contributions of this study comprise the sphere of teaching, practical and social, as for teaching, technology can be used with the public for which it is intended.
D10 BDTD	**General:** To develop an Educational Material with transitional care, aimed at the patient and his family/caregiver, for the management of tracheostomy at home in pediatric patients at hospital discharge. **Specific:** - Identify and map what are the transition care in the postoperative tracheostomy user, through the Scope Review; - Identify the care and difficulties with tracheostomized patients; - Describe the sociodemographic profile of the interviewed population; - Validate the booklet as an educational technology.	Methodological Study. The interview stage and Evaluation of the Target Audience with the family members were carried out in a Children's Hospital. Booklet developed in 4 phases: (1) Definition of the content: two stages: Scoping Review and the second stage, interview with the family members/caregivers of pediatric tracheostomized patients. (2) Elaboration of the Primer's Prototype: The structure of the prototype was organized in columns with: The categories of the interviewees' statements, along with the phenomena of interest of the scoping review and, finally, a column describing all the care with the tracheostomy raised both in the Scoping Review and in the Interview. (3) Production of the booklet for the family: The contents addressed in this phase were clear and objective about tracheostomy care, from the basic care that is directed to the care of the family described in the interviews, to those identified in the scoping review. (4) Evaluation of the booklet by experts: 12 expert judges.	This educational technology provides guidance to family members and caregivers regarding the main daily care provided to children with tracheostomy, improves the understanding of these caregivers about the care to be performed and helps them in the dialogue with health professionals in home actions. The topics were defined: Initial Information, which is related to Family Support and Caregivers, General Care, Aspiration, Advanced Care, Final Considerations, Important Contacts and References.

D11 BDTD	**General:** Develop educational technologies, with emphasis on the production of an E-book as a pedagogical tool to support distance learning for the safe care of children with cow's milk protein allergy and other allergies, for the professional training of nurses and education professionals. **Specific:** - To analyze existing national and international publications on the management of safe care for children allergic to cow's milk protein at risk of anaphylaxis in the out-of-hospital environment; - To identify the knowledge of nursing students about the management of safe care for children with CMPA at risk of anaphylaxis; - Present the elaboration and application of a workshop for the teaching of nursing students, with the construction of an Action Plan for the management of the safe care of children with CMPA; - Structure a distance learning course for the teaching of all professionals who work in schools; - Produce and validate an E-book as didactic material to support the course in the distance modality; - Propose an Intervention Plan for Safe Care1 in the professional training of nurses and education professionals.	Applied research, of an interventional nature, with the development of educational technologies based on the Design Thinking method, that is, centered on the human being. Descriptive and exploratory character, with a qualitative approach. The first stage of data collection consisted of an integrative review. The second stage of data collection, in order to identify the knowledge of nursing students about the management of safe care for children with cow's milk protein allergy (CMPA) in a pedagogical workshop. The workshop was structured based on the Problematization Methodology, in which a Pre and Post-test was applied, using a semi-structured questionnaire, composed of closed questions. An Action Plan was also prepared by the participants addressing the issue related to the safety of children allergic to milk protein in the school environment. From this workshop and a previous review, an E-book was structured as didactic material for the distance learning course, which is intended to be applied later to this study. The E-book was validated by expert judges.	The technology developed was an E-book or digital book with 126 pages, to support the student of the distance course. To support the course, which lasts 40 hours, the E-book entitled "Safe Care of Children with Food Allergies in the School Environment" was created, in PDF format. This material is intended for all professionals who work in public and private schools in the country, upon proof of Acting in schools/daycare centers. The objective of the course is to equip all professionals who deal directly or directly with the indirectly with children so that they can act in a preventive way to risks related to food allergies, in addition to optimizing the emergency response in an allergic reaction/anaphylaxis. The aim is to create a social impact in schools, bringing who knows, paradigm shifts.
D12 BDTD	**General:** To validate a scale constructed to assess maternal self-efficacy in infant feeding. **Specific:**	This is a methodological study in which Pasquali's theoretical principles were adopted for the elaboration of the scale. The first stage consisted of the identification and definition of the construct "promotion of infant feeding", based on a review. The content	The Maternal Self-Efficacy in Infant Feeding scale addresses practices recommended by the WHO to promote infant feeding. The items were elaborated with the purpose of achieving a simple,

	- Develop items and theoretical dimensions of the maternal self-efficacy scale in infant feeding. - Verify the content and semantic validity of this scale.	analysis was carried out by 22 judges, professionals with experience in the theme of infant feeding. The collection period was from October 2017 to January 2018, using an electronic form, containing a synopsis of the theory of self-efficacy, professional qualification, instructions for filling out the scale, and the instrument to be validated. A semantic analysis was carried out with 30 judges, mothers with children registered in a Basic Health Unit, belonging to the Sanitary District IV, in January 2018, through an interview conducted at home. The form applied contained information related to the characterization of the sample and the instrument to be evaluated.	clear and objective language with a view to being accessible to the smallest stratum of the target population. Among several self-efficacy scales that refer to child care, none addresses maternal practices in infant feeding in a peculiar way. The differential of the scale is that it is anchored in the Theory of Self-Efficacy, which is known to be able to identify mothers with low confidence and with a higher risk of developing inadequate infant feeding practices, as evidenced by its results. It contemplates aspects not only of food practice, but of responsive eating, a topic that needs to be further explored in Brazil. The final version of the scale was composed of 30 items and two domains (feeding practice and maternal behavior). The instrument will allow nurses and health professionals to assess maternal confidence and identify their difficulties in managing infant feeding. This will provide the direction of educational actions in the childcare service.
D13 BDTD	**General:** Perform content and semantic validations of an instrument to measure the family's perception of self-efficacy for the care of children on peritoneal dialysis at home. **Specific:** - Build an instrument to measure the self-efficacy of the family of children on peritoneal dialysis at home based on the difficulties and challenges faced by the family; - Perform content validation with experts on the subject; - Perform semantic validation with the target population.	This methodological study adopted the model proposed by Pasquali to guide the construction and validation of the instrument. Bandura's Self-Efficacy Theory was the theoretical framework that grounded the construction of the scale. The theoretical procedures center was conducted in three stages: (a) definition of the construct through literature review and field study; (b) content validation; (c) semantic validation. The study was carried out at the pediatric nephrology outpatient clinic of a university hospital	The proposition of the scale items was supported by the analytical synthesis of the categories identified in the scoping review and in the field study with families of children on peritoneal dialysis at home. From the content validation carried out by five specialists in the field of the concept, using the Delphi technique, a Content Validity Index of 0.84 was obtained after three rounds and a total Kappa of 0.70, demonstrating good agreement among the professionals. Five families of children on dialysis at home participated in the semantic validation; After two rounds, 100% agreement was verified, with reports of good comprehensibility of the items. The scale constructed contains 26 items that explore the perception of the collective

			effectiveness of the family in this context of care. The measurement instrument constructed is a tool to identify the perception of the family's collective effectiveness, that is, the care behaviors that it feels capable of performing to meet the demands of the child and the family at home in the face of difficulties.
D14 BDTD	**General:** Validate a toy and story as an educational technology for the preparation of children who will be submitted to cardiac catheterization in a therapeutic toy session. **Specific:** - Build the toy and story for the preparation of children who will undergo cardiac catheterization. - Validate the content of the toy and story for the preparation of children who will undergo cardiac catheterization.	Methodological study, developed in two stages: - Construction of the toy and story that occurred through understanding the care provided to the child submitted to cardiac catheterization and interview with team professionals. - Validation of the content of the educational technology carried out by 23 judges (storytellers, early childhood educators, nurses, doctors, psychologists, psychopedagogues and occupational therapists).	The toy constructed in this study consists of nine rag dolls, a prototype of the angiograph and the anesthesia machine, and objects for hospital use. The elaborate story addresses in a playful way the physical structure of the Hemodynamics room and all the stages that comprise the pre, trans and post-cardiac catheterization. The toy and story validated in this study, when used in a therapeutic toy session, may constitute a dialogue between health, education and art, capable of enabling interaction between the health professional, the child and family members.
D15 BDTD	**General:** Adapt the *Self-efficacy in Infant Care Scale (SICS)* to the cultural reality of Brazil. **Specific:** -Translate the *Self-efficacy in Infant Care Scale (SICS)* into Portuguese in the Brazilian context. -To verify the validity of the content of the *Self-efficacy in Infant Care Scale (SICS),* Brazilian version, to detect the self-efficacy of mothers in child care.	First Integrative Literature Review Article was carried out, entitled: "Home care for the promotion of child health in Brazil: an integrative review". Second article: "Cross-Cultural Adaptation and Content Validation of the *Self-efficacy in Infant Care Scale* for Brazil". This is a methodological, quantitative study. Cross-cultural adaptation process that followed the following steps: initial translation, synthesis of translations, back-translation, committee of judges and pre-test of the final version. Content validation was performed through the analysis of eight experts and semantic analysis by 30 mothers of children aged 0 to 12 months, followed up in childcare in Sanitary District V of the city of Recife, PE.	The adapted scale consists of 43 items distributed in four domains: promotion of development; general health care; safety and diet. After translation, adaptation and content validation, SICS proved to be adequate to the Brazilian cultural reality. The application of the scale to the mothers in the pre-test and appearance validation allowed the content of the items to be brought closer to regional expressions and made them more understandable. In child nursing care, a large volume of information is common, so it is expected that the SICS contributes to the optimization of the time of the childcare consultation, through the selection of information from the caregiver's trust and that it subsidizes the planning of educational actions aimed at the difficulties in care. The use of this scale will be useful to select the information to be discussed in the childcare consultation.

D16 BDTD	**General:** To develop an instrument for the evaluation of the newborn in the First Week of Integral Health. **Specific:** **-**Validate the content of the instrument for the evaluation of the newborn in the First Week of Integral Health.	This is a descriptive study with a quantitative approach, methodological development, the type of content validation of an instrument for the evaluation of newborns with a view to being able to use it in the consultation carried out during the First Week of Integral Health (PSSI). The development of the study occurred in two stages: - development of an instrument for the evaluation of newborns in the PSSI; - content validation of the instrument for newborn assessment in the PSSI. The instrument was developed based on the actions recommended in the line of child health care ministries. To validate the content of the instrument, the Delphi technique was used . The study was carried out in interdependent stages: - elaboration of an instrument for the evaluation of the newborn in the PSSI; - analysis of the instrument's content by 10 expert judges, who evaluated the general appearance of the instrument, the ease of understanding, the feasibility for care practice, the items covered and the relevance of the topics; - correction and incorporation of changes in the instrument according to the analysis of the judges; - Validation of the instrument's content.	The instrument consists of the following items: Block A - Identification of the mother, father, child and health professional who is providing care, obstetric history of the postpartum woman, general information about prenatal care, labor and birth. Block B - checklist containing possible danger signs for the newborn, space for other observations, indication of the conduct if danger signs are identified in the newborn. Block C – check-list containing information on the actions recommended in the PSSI, such as neonatal, ophthalmological, hearing and cardiology screenings, vaccination status, guidance on breastfeeding, care and hygiene of the newborn and the mother. Block D – evaluation of the mother's general condition, checklist with risk situations for the mother-baby pair.
D17 BDTD	**General:** To build and validate an educational booklet with daycare educators on prevention/care in upper airway infections in childhood. **Specific:** **-** Identify the contents that are relevant for the construction of an educational booklet for daycare educators on prevention/care of upper airway infections in childhood; - Analyze and discuss the content and appearance aspects that are highlighted by the committees participating in the validation process; - Identify if the topics addressed present a clear and simple way for the understanding of early childhood	Technology validation research, with methodological development, focusing on the elaboration and validation of instruments, and emphasis on the qualitative-quantitative approach. For the development of this study, it was decided to follow three phases: - Construction of the educational booklet through an integrative review, which guided the definition of the contents to compose the booklet and, subsequently, the layout of the first version was carried out. - The second phase occurred with the process of validating the content of the booklet by the expert judges and preparing the second version. Expert Judges - The third phase was followed by the appearance validation process, a step that was up to the target audience. Regarding the quantitative analysis, the material was validated from the point of view of content and appearance, since it presented an excellent level of agreement between the expert judges (90.91%) and the representatives of the target audience (99.15%).	The Booklet in its final version has 26 pages, consisting of: cover; Back; catalogue sheet; Technical; summary; presentation; seven topics, referring to the content covered; references used and; verse. The information contained in the booklet was organized in a way that portrayed the path of care needed to be carried out by early childhood educators in the daycare center, offering them contextualization about upper airway infection, a brief explanation of the children's respiratory system, forms of transmission, prevention, care and risk factors. A material rich in drawings was chosen, with the objective of facilitating the assimilation of the contents addressed by all early childhood educators, including any professional who assists in the care of children throughout the daycare center.

	educators of children in daycare; -Evaluate whether the educational booklet is a statistically valid tool to be used in the daycare center by the target audience.	In the qualitative analysis, thematic analysis was adopted, consisting of three thematic categories: readability of the texts; adjustments in the layout; and general evaluation.	
D18 BDTD	-Build simulation scenarios from Deliberate Practices in Rapid Cycles aimed at family members of children dependent on technological care with tracheostomy in the process of hospital discharge; - Validate the simulation scenarios from the Deliberate Practices in Rapid Cycles with expert judges in the area of child health and simulation Clinic.	Methodological research for the elaboration of clinical simulation scenarios based on Deliberate Practice in Rapid Cycles and validation of these scenarios by expert judges in the area of child health and clinical simulation for the preparation of family members of children dependent on technological care with tracheostomy in the process of hospital discharge. Carried out in five stages: - Theme search: integrative review - Theoretical study: search in the national and international scientific literature, in books, guidelines, consensuses. -Construction of the scenarios: the scenarios were built in such a way that the participants can feel as close as possible to the real situation. -Validation of clinical simulation scenarios in the Deliberate Practice in Rapid Cycles modality by the expert judges: 12 participants, 9 were from the area of child health care and 3 professionals from the area of interest of clinical simulation. -Adequacy of the clinical simulation scenarios in the Deliberate Practice in Rapid Cycles modality after validation with the expert judges: the suggestions and/or comments for adjustments to the constructed scenarios were grouped according to each domain evaluated (objective, structure and presentation, relevance) and categorized based on similarities and specifications of the suggested modifications.	Generated product: Construction of clinical simulation scenarios in the modality of Deliberate Practice in Rapid Cycles for the preparation of family members in the management of procedural care of technology-dependent children with tracheostomy in the process of hospital discharge. The themes found in the integrative review and the theoretical study carried out were of great value, as it was possible to reveal some of the vulnerabilities existing in the care practices of CSHCN at home, highlighting the need for better instrumentalization and guidance of family members regarding the management of tracheostomy. It was also observed that there was a lack of recommendations, clinical guidelines, and well-defined care protocols for carrying out this management safely. In an overall evaluation of the scenarios, all three scenarios were considered valid because they achieved an agreement rate higher than 70%. The participation of the expert judges was essential, as it made it possible to evaluate the scenarios with complementary perspectives. Preparing these families during the transition of care for these children from the hospital to home is very important for the execution of procedural care with excellence, ensuring the quality of this transition in a safe way and nursing care for the health of this clientele.
D19 BDTD	Create the visual content of an educational technology for learning the physiology of lactation and validate the content with expert judges.	Methodological study conducted by the conceptual model of Translating Knowledge into Action to develop a tool/product with knowledge. The creation took place from March to October 2018.	The product was developed from the animation technique to favor learning from the representation of organs, hormones and nerve impulses, main elements of lactation physiology attributed to an

		The script for animation was developed from the identification of the imagery content of lactation physiology and the sealing of key images through a search in textbooks and manuals developed by the Ministry of Health, in the National Digital Library of Brazil, Virtual Health Library and SCIELO books. The validation took place from October to November 2018, when about 100 professionals with expertise in breastfeeding or maternal and child health and with experience in teaching, research or care were invited. These professionals were accessed by the International Network in Defense of the Right to Breastfeed, *the International Board of Lactation Consultant Examiners,* the International Network of Child Health Nursing, and the Network for the Study of Educational Technologies, and through the snowball technique, a sample was composed of 27 expert judges who answered a *Likert-type* questionnaire on an online platform.	implious content, difficult to understand. In addition, the technology articulates a part recorded on video to locate the target of the content to be learned. In the validation, the technology obtained an index and Overall Content Validity of 0.84. The visual educational technology for learning lactation physiology is validated in content. This technological support tool can be inserted as an auxiliary resource in health education actions, and may have positive repercussions for the practice of breastfeeding.
D20 BDTD	**General:** Develop and validate a mobile application about the first nursing appointment to the newborn **Specific:** -Develop and validate the content of a mobile application on the nurse's first consultation with the newborn in primary care. -Build a mobile application about the nurse's first consultation with the newborn in primary care and validate the navigability and interface of this mobile application.	Methodological research, with a quantitative approach, used the theoretical framework proposed by Perrenoud (2000) and the methodological framework of Filatro's Instructional Design (2007). The App was created from Android Studio version 4.0.1, with the Integrated Development Environment and Intellij IDEA. The development of the content was based on the results of the Integrative Review. It also considered official materials from the Brazilian Ministry of Health about the care of newborns (NB). *Baby Date* was built with 59 screens and between March and June 2021, 15 judges allocated to three groups (G1, G2, G3) with five judges in each, validated the content. The judges pointed out the need for changes, and the App totaled 67 screens. After the content went through a review of the appropriate use of the Portuguese language. The validation of navigability and interface took place between August and September 2021, with five judges: three nurses and two technology professionals. Both had 100% agreement.	The validated version of the App has 67 screens. The *Baby Date* mobile application corroborates the creation of digital materials that are advancing in the nursing universe. The content of this device was initially created to support nursing students in learning how to care for newborns and their families during the baby's first consultation after discharge from the maternity ward. However, it is understood that it can also contribute to the actions of primary care nurses. This App sought to point out the direction of care through topics considered essential to be addressed in the childcare consultation. Baby *Date* can be considered as a reliable material and conducive to be used to offer qualified assistance to the NB.
D21 BDTD	**General:** Develop a serious *game* type for children with Chronic Kidney Disease and their families	Methodological Research, with a theoretical framework of meaningful learning by David P. Ausubel and a methodological framework by Jeannie Novak.	The *serious game* has five lessons. The beginning has the choice and assembly of an avatar.

	focused on care in renal replacement treatment in the Peritoneal Dialysis modality. **Specific:** - Identify the main difficulties of children and their caregivers in continuing the treatment of children with Chronic Kidney Disease at home; - Identify the most frequent doubts of children with Chronic Kidney Disease and their caregivers in relation to the disease and its management at home; -Develop a prototype of a serious game about care related to Peritoneal Dialysis for children with Chronic Kidney Disease.	The study complied with the concept stages and the *Game Design Documnet.* In the first stage, a qualitative study was carried out with semi-structured interviews with children with Chronic Kidney Disease undergoing treatment with Peritonel Dialysis and with their main caregivers. The analysis was carried out through Inductive Thematic Analysis. The themes added to specific literature for the care of children in Peritoneal Dialysis and documents and regulations of the Brazilian Ministry of Health, and guidelines for the use of the device in Peritoneal Dialysis, grounded the content of the serious *game prototype*. The *Game Design Document* was prepared by the researcher and a graphic designer.	Lesson 1: Peritoneal Dialysis catheter care. Lesson 2: Feeding children with Chronic Kidney Disease. Lesson 3: Hand hygiene. Lesson 4: Peritoneal dialysis at home. Lesson 5: Infection prevention. The prototype has images to color, pictures that demonstrate healthy eating, interaction with the player for hand hygiene, sequence to be indicated for Peritoneal Dialysis and a quiz on peritonitis. The offer of this device favored the teaching-learning process of children with Chronic Kidney Disease undergoing Dialysis treatment. Its use is indicated not only for children and their caregivers, but also for health professionals in the hospital or primary care setting, who can use it as a training tool for home care.
D22 BDTD	**General:** To construct and validate a serial album for the prevention of child overweight in primary care. **Specific:** -Characterize the knowledge and demands of mothers and health professionals about the themes to be addressed in the serial album. - Organize the contents and themes for the construction of the serial album. - Submit the serial album to the judges' evaluation.	This is a descriptive study that focuses on the development and validation of an instrument for educational intervention. Developed in the municipality of Itupeva – São Paulo/SP. It was developed in three stages: 1) Listening workshop with mothers and primary care health professionals. 2) Construction of the serial album. 3) Validation of the serial album. Three workshops were held. Two with 10 mothers and one with 14 primary care professionals. The workshops were recorded, transcribed and submitted to content analysis. The themes extracted from the workshops, technical documents from the Ministry of Health and figures available in the web image bank were used in the construction of the serial album. The Serial Album was validated by eight judges, professionals linked to the municipality's Health and Education Board.	The construction of the Serial Album was based on the themes extracted from the workshops held with mothers and health professionals. The material was organized according to the themes "Recognition of overweight/obesity"; "Consequences for the child's health"; "Strategies for prevention and promotion of child health". The Serial Album was made up of 27 leaflets with front and back. The construction and validation of the Serial Album, based on critical education, involves the participants, facilitates the use of this technology by health professionals in the educational process in primary care, and favors the understanding and incorporation of important steps for the prevention of child overweight.
D23 CAPES	To construct a manual of care for children on home mechanical ventilation for nurses in Primary Health Care and the validation of its content and appearance.	Methodological research, of a descriptive nature, carried out from October 2018 to July 2019. For the theoretical foundation, an integrative review was carried out on the theme.	The study proposed the development of a "Manual for child care on home mechanical ventilation for nurses in Primary Health Care". After careful evaluation by professionals who are experts

		Then, the manual was prepared with the help of a graphic designer, who prepared the illustrations under the guidance of the researcher. To this end, criteria were used that describe aspects related to language, illustrations and layout/design. After the construction of the manual, the content and appearance were evaluated by 22 specialists. These were health professionals, mostly nurses, inserted in teaching and/or care in Pediatrics and Primary Health Care, recruited through a search on the Lattes Platform and snowball sampling. Each participant answered the printed technology assessment instrument. The data were organized in Microsoft Word documents and Microsoft Excel spreadsheets, presented in charts and tables. In the data analysis, the Content Validity Index was used.	in the field, this educational technology was validated for its content and appearance. Validation was performed by 22 specialists and satisfactory CVI was obtained. The following aspects were included in the manual: definition of invasive mechanical ventilation; Indications; organization of the household; and care that requires invasive treatment because these children belong to a diverse group of patients with complex health care needs. Manual contains graphic design and digital illustration, with attractive figures, easy to understand and consistent with the cultural context of the target audience. We sought to combine content that is relevant in terms of information, but objective and with language accessible to nursing professionals who work in Primary Health Care.
D24 CAPES	**General:** To build and validate an educational booklet for caregivers of children with neurological sequelae caused by cancer. **Specific:** a) To identify the main difficulties in caregivers' knowledge about the care of children with neurological sequelae caused by cancer; b) To prepare an educational booklet on the care of children with neurological sequelae to be carried out by the caregiver; c) Validate the appearance and content of the booklet with the expert judges.	Methodological study carried out from January 2018 to December 2020, in a tertiary hospital in the municipality of Fortaleza-CE. The study consists of an integrative review; and validation of the booklet with expert judges using the Content Validation Index (CVI). To evaluate the reliability of the proposed items, where a CVI greater than or equal to 0.75 was considered. In the semi-structured interview with the mothers/caregivers, it was possible to detect the main points pertinent to the practical experience of the target audience. The interviews were transcribed and the most frequent doubts resulted in the classification of three categories. The booklet was validated by 6 judges as to content and appearance.	The booklet is a valid, practical, and easy-to-understand educational material for caregivers and health professionals. This educational booklet was developed in order to promote guidance and training for mothers of children with neurological sequelae caused by Central Nervous System cancer and had its content and appearance validated by expert judges. The team of judges participating in this validation process was composed of higher education professionals with extensive experience in the health area, preferably working in pediatrics or oncology, and with practical knowledge in the production of educational material. The material is indispensable for the multiplication of information based on scientific evidence, thus enabling the promotion of children's health.
T1 BDTD	To develop and evaluate an educational software on the Child Health Handbook (CSC) aimed at the continuing	Study of technological production with the development of educational software and quali-quanti approach. The methodological path was divided into three stages:	The corpus produced was organized into five thematic categories for continuing education: monitoring of children with Down Syndrome;

	education of childcare professionals in primary care.	1) To identify the needs of primary care professionals for continuing education on the CHR, an exploratory study with a qualitative approach. Seventeen primary care physicians and nurses in Recife responded to a semi-structured interview. For the analysis of the interviews, the content analysis technique according to Bardin was used, with the aid of the Atlas ti software. 2) To develop an educational software on CHR for the continuing education of childcare workers in the context of primary care based on the pedagogical assumptions of meaningful learning, with subsidies from the information collected in the diagnosis stage. 3) To evaluate the SSC educational software in the context of primary care from the perspective of child health specialists. In this stage, four nurses and four physicians performed a pedagogical evaluation of the educational software. To this end, a questionnaire adapted from Behar (1993) was used, with concepts arranged on a Likert-type scale. The data were analyzed using the Content Validation Index (CVI) and the Percentage of Agreement among the specialists with cut-off points of 80% and 90%, respectively.	children's rights; guidance on oral, eye, hearing health, among others. The educational software Child Health Handbook in the Context of Primary Care was evaluated by the experts with a General CVI of 95% and a General Percentage of Agreement equal to 92.6%. The conceptual and work process needs for the use of the CHR by primary care professionals as justifications for its underutilization indicated the need for continuing education for nurses and childcare physicians in primary care. With this proposal, the educational software developed was considered by the experts as suitable for continuing education because it had achieved its goal as a teaching-learning tool.
T2 BDTD	**General:** To systematize the theoretical and operational bases of care for children born prematurely and to compose health education material to promote their functional development at home. **Specific:** -Seek evidence and fundamental information about functional development and its implications for home care; - Build educational material on the care and promotion of the functional development of children born prematurely; -Validate the content and appearance of the educational material in a participatory process with	This is a methodological study, with a mixed, exploratory and analytical approach. An integrative review was conducted. This content guided the construction of an educational material to support and guide families. The educational material was submitted to caregivers and professional-judges for validation, through participatory strategies. The judges, selected from the Lattes Platform, answered a web-questionnaire, or participated in a focus group. Family caregivers, invited to a preterm follow-up service, participated in focus groups. The qualitative data were submitted to Thematic Content Analysis and the quantitative data to descriptive analysis. 80% was defined as the level of agreement.	A total of 53 professionals participated in the study, 45 from the health area and nine from the communication and education area, and 16 caregivers. The educational material entitled "Sofia's Story: Battles and Achievements of the Family in the Care and Development of the Premature Child" was widely accepted, validated by health professionals and family caregivers, who reported interest in applying it in their practice and sharing it with other families. The families considered the language of the material clear and accessible, and its content realistic in relation to their experiences, reflecting their experience and main issues in fellatio the theme addressed. The educational material produced has the potential to support families in promoting

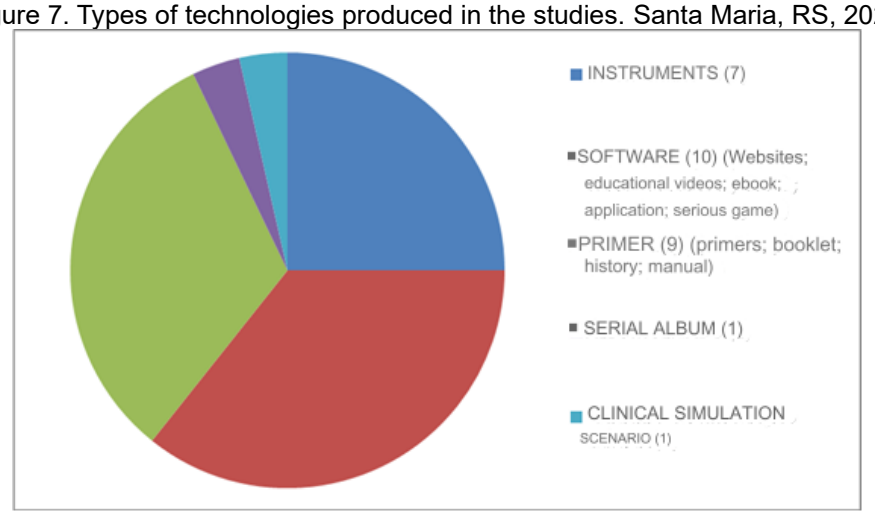
	family members and professional-judges.		the development of children born prematurely.
T3 BDTD	**General:** Validate educational booklets for family members of children/adolescents with leukemia for home care. **Specific:** -Evaluate the adequacy of content and images of the educational booklets for family members of children/adolescents with leukemia for home care with expert judges and the target audience. -Validate with expert judges the content and images of the educational booklets for family members of children/adolescents with leukemia for home care. -Validate with the target audience the content and images of the educational booklets for family members of children/adolescents with leukemia for home care.	This is a study of content and appearance validation by expert judges and the target audience of the booklet entitled "Educational booklet for family members of children/adolescents with leukemia for home care". The booklet was built in the Master's Degree (2017-2019) and divided into four volumes: "Care in the feeding of children/adolescents with leukemia at home", "Care with the central venous catheter at home", "Care for children/adolescents with low immunity at home", "Application of bone marrow stimulator medication at home". The participants were divided into four groups, and each group evaluated a volume of the booklet. Data collection took place through a questionnaire on *Google Forms*, first with the expert judges, from November 2021 to April 2022, then with the target audience from February to October 2022. Validation with expert judges occurred in two evaluations. In the first group, the groups were composed of 10 (3 nurses, 5 nutritionists and 2 physicians), 11 (9 nurses and 2 physicians), 12 (10 nurses and 2 physicians) and 12 (9 nurses and 3 physicians). In the second evaluation, 10 (5 nurses, 3 nutritionists and 2 physicians), 11 (9 nurses and 2 physicians), 10 (8 nurses and 2 physicians), 11 (9 nurses and 2 physicians). With the target audience, it occurred in only one evaluation, where the groups had 13, 12, 12 and 12 family members.	After the modifications considered necessary by the expert judges, the four volumes had an overall agreement rate of 99%, 98%, 99% and 96%. The target audience approved the volumes with an overall agreement rate of 99% each, with no suggestions for changes. The validation of this booklet is important, as it contemplates a series of doubts of family members in the continuity of care at home. In this way, the booklet makes it suitable for distribution and use in health units, with the aim of supporting family members in the home care provided to children and adolescents. In addition, it will allow health professionals to intervene in advance with family members with guidelines to promote a safer hospital discharge.
T4 BDTD	**General:** To develop a *Software* (Prototype) for Nursing Consultation (SC) applied to the monitoring of child growth and development (HC) in Primary Health Care (PHC). **Specific:** - Build and validate a Nursing History (HE) instrument for the first consultation and for the subsequent consultation applied to the follow-up of the infant HC, based on the Theory of Basic Human Needs (TNHB) and the International	Methodological study for the elaboration of the instrument for the nursing consultation, which consisted of five phases: - Literature review; - Structuring of instruments for validating the content of the nursing consultation for the follow-up of the children's DC; - Selection of judges to participate in the study; - Validation of the content of the Nursing History: Delphi Technique; - Development of the Telenursing environment (prototype software) for the monitoring of the children's DC. Data analysis was performed using simple descriptive statistics, using absolute and relative frequencies, mean, standard deviation, binomial test, and content validity index.	Results were presented in three manuscripts: 1) Nursing consultation for monitoring child growth and development in Primary Health Care: an integrative review. 2) Validation of nursing history instrument to monitor child growth and development. 3) Prototype software for monitoring child growth and development in Primary Health Care. The first article is related to the findings for the characterization of the child's consultation, which revealed gaps in the monitoring of child growth and development due to limitations related to the theoretical and/or practical

	Classification of Nursing Practices (ICNP).		knowledge of nurses in Primary Health Care. The second article reveals the content validation of the instruments for the first consultation and subsequent consultation applied to the child. It refers to the use of the Delphi 1 stage, in which eight judges evaluated the nursing history instruments, from the Delphi 2 and 3 stages, six. The nursing history was considered valid in its content. Article 3 is related to the *software*, developed on a *web* platform and presents the previously established requirements that are related to the system, resulting in activities that are accessible to the users (administrator and nurse user) registered in the system. The nursing history instruments and software developed and validated can guide the practice of PHC nurses, provide opportunities for more effective communication and the empowerment and autonomy of nurses.

Source: Survey Data, 2024.

Figure 7 presents the visualization in a summarized way about the types of technologies that were produced in the studies of the dissertations and theses of the barrels, thus outlining the production trend. It can be seen that the instruments of the most distinct spheres of child care prioritize studies, followed by booklets, websites, booklets, educational videos, applications, serial albums, ebooks, toy making and realistic simulation scenarios of situations that require attention to the child.

Figure 7. Types of technologies produced in the studies. Santa Maria, RS, 2024.



Source: Survey Data, 2024.

In recent years, there has been an ascendancy in the production of materials built for use in online and download form, ratifying the current technological scenario in which we are inserted. From the year 2021 onwards, there is a decrease in the production of technologies, but it is believed that these may still be unavailable publicly. Such technologies enable quick and easy access, and can optimize the actions of care, guidance and health education of nursing professionals involved in the care of children.

DISCUSSION

The predominance of studies was based on methodological research, more precisely 23 studies that make up this review. Methodological studies aim to develop instruments, allowing the researcher to use models with mixed methods (quanti-quali), or only one of them. Such studies address the development, validation and evaluation of research tools and methods (POLIT; BECK, 2018).

To compose the content of the technologies, the studies evidenced the previous performance of Integrative Literature Review D1, D2, D6, D11, D12, D14, D15, D17, D18, D20, D23, D24, T1, T2. Integrative literature review is a specific method that summarizes the past of empirical or theoretical literature to provide a more comprehensive understanding of a given phenomenon (BOTELHO; CUNHA & MACEDO, 2011). It allows the combination of several methodologies (experimental and non-experimental studies) and has the potential to play an important role in Evidence-Based Practice (EBP) in Nursing (SOUZA; SILVA; & CARVALHO, 2010; WHITTEMORE & KNAFL, 2005).

The Narrative Literature ReviewD3, D5, D7, D9, D16, D19, D20, D21, D22 was used by some studies to assist in the elaboration of the content of the technologies produced by them. In this sense, narrative review articles are broad publications appropriate to describe

and discuss the development or state of the art of a given subject, from a theoretical or conceptual point of view. These are texts that constitute the analysis of the scientific literature in the interpretation and critical analysis of the author. Despite the fact that its strength of scientific evidence is considered low due to the impossibility of reproducing its methodology, narrative reviews can contribute to the debate of certain themes, raising questions and collaborating in the acquisition and updating of knowledge in a short period of time (ROTHER, 2007).

Two studiesD10, D13 used the *Scoping Review* to map the scenario about the intended technologies and also to support the conceptual content that would contemplate such constructions. Thus, the *scoping review* technique is being widely used in the area of health sciences with the purpose of synthesizing and disseminating the results of studies on a subject (LEVAC; COLQUHOUN; O'BRIEN, 2010; JBI, 2015). The objective of a scoping analysis is to map, through a rigorous and transparent method, the state of the art in a thematic area, intending to provide a descriptive view of the reviewed studies, without critically evaluating them or summarizing evidence from different investigations, as occurs in a systematic review (ARKSEY; O'MALLEY, 2005).

Most of the studies, specifically 24 of themD1, D2, D4, D6, D8, D9, D10, D11, D12, D13, D14, D15, D16, D17, D18, D19, D20, D22, D23, D24, T1, T2, T3, T4, performed the validation of the technologies with expert judges in the proposed themes. Thus, for the validation of a technology, it is important to have an evaluation by experts on the subject, who can suggest, add, correct or even modify the items they deem necessary (ALEXANDRE; COLUCI, 2011).

The instruments constructed in the studies outlined numerous situations of care for children and their families. Two studiesD1 and D2 developed Nursing Care Systematization (NCS) forms for care in one of them, for children with Cow's Milk Protein Allergy (CMPA) and the other, for early screening of Autism in children in the nursing consultation.

In this context, Cow's Milk Protein Allergy (CMPA) is defined as an immunologically adverse reaction to the antigens present in cow's milk. Its signs and symptoms generally present in the first 12 months of life, after weaning or after its first exposure (SAARINEN et al., 1999). Some studies show a prevalence of 2 to 5% among infants under 1 year of age diagnosed with CMPA, but the rates of underdiagnosis are still high, reaching 15%. This food allergy is the most frequent in children under the age of 3 years and, in the last century, its prevalence has doubled (ERRAZURIZ et al., 2016). Thus, studyD1 has the potential to be used as a resource for the improvement of NCS for children and, thus, can also support the development of holistic, singular and qualified nursing care.

The instrument, which was developed as a way to facilitate the screening of childhood autism, has the potential to provide not only the child, but also the nurse with information so that he or she becomes more active with regard to autism and innovative in the child's cognitive development. The role of nurses in the early detection of signs and symptoms is relevant to contribute to the early identification of AutismD2. To elucidate, Autism is understood as a psychosocial disorder, and a genetic condition of the individual, whose impairments are mainly related to an excluding sociocultural environment, which affects the areas responsible for social interaction, communication and restrictive behavior (ZAVALETA RAMÍREZ et al., 2014).

It is understood that the professionals who are part of the health teams need practices that can stimulate discussion and enhance care for Autism in Primary Health Care (PHC), especially the nurse who is part of the direct monitoring of children in Childcare. However, they must be able to assess possible changes in the child's growth and development, by age group, paying attention to developmental milestones by age, in order to make an early diagnosis of possible changes (LIMA et al., 2021).

Two other instrumentsD8, D16 were constructed in dissertations to meet the needs of the newborn (NB). One of themD8 aimed to develop an Assistance Technology to guide the performance of the first home visit (HV) to the newborn and his family entitled: First home visit to the newborn and family. The product presented itself as an important tool that will allow professionals to detect maladjustments early, and to carry out care and surveillance of warning signs, with guidance for referrals of newborns at risk.

From this perspective, the first approach through HV in the first week of life, preferably up to the fifth day of life, is recommended both at the federal and state levels, due to the recognition of risks in this period, as well as the objective of promoting health and preventing future problems (BRASIL, 2011), being indispensable for the provision of care to the baby safely at home (SANTOS et al., 2014).

A master's thesisD16 developed an instrument to assess newborns in the First Week of Integral Health (PSSI), in order to organize the care process of health promotion and disease prevention actions in Primary Health Care (PHC) in the first week of life of newborns. Thus, PSSI emerged as a strategy for the care of the mother and the newborn, considering that this period is of great vulnerability in the lives of the woman and the child. In this strategy, care is proposed to be provided to the mother-child binomial, aiming at health promotion and disease prevention, through the encouragement of exclusive breastfeeding, the prevention of anemia, malnutrition and diarrheal diseases. Vaccination of vaccine-preventable diseases is encouraged and childcare and postpartum appointments

are scheduled. It is also possible to promote the early detection of health problems in the child by performing the heel prick test, the ear test, the eye test, and the evaluation of risk factors for the mother and the newborn. This set of conducts is guided by the Ministry of Health in order to guarantee comprehensive child health care (BRASIL, 2004).

Two studiesD12, D13 performed the construction of Self-Efficacy Scales, the firstD12 refers to the assessment of maternal self-efficacy in infant feeding. Self-efficacy is a predictor of health behaviors, which enables nurses to identify the difficulties perceived by mothers in this process and to direct educational actions. This scale can help nurses to assess and also help mothers at the time of childcare, through actions aimed at minimizing their needs and anxieties related to breastfeeding. Thus, mothers should feel able and prepared to feed their children in a healthy way in order to promote the well-being and proper growth and development of the child. The belief in one's ability to successfully perform a behavior capable of producing results can be defined as self-efficacy (BANDURA, 1994).

The studyD13 proposed the construction of a family self-efficacy scale for the care of children on peritoneal dialysis (PD) at home. This scale allows the nurse to identify the weaknesses of family members in the care of these children, allowing this professional to develop actions to assist in this home care process through joint conducts and ideas with the families, according to the context and reality in which they are inserted.

In this environment, for home PD to be performed, the involvement of the family is indispensable, which, in turn, needs guidance until it becomes able to care for the child and perform the procedures at home (LOMBA et al., 2014). PD is a daily process, for an indefinite period of time, in which the family needs to be supported to participate in the child's care. The nurse needs to introduce the family to the care of the child, enabling him to assume the execution of dialysis procedures at home, for the management of the treatment and also to perceive signs and symptoms of complications with the therapy and with the child (AMARAL, 2016; WIGHTMAN et al., 2019).

The dissertationD15 aimed to adapt the *Self-efficacy in Infant Care Scale* (SICS) to the cultural reality of Brazil. This scale is shaped like a self-administered questionnaire to assess the mothers' self-efficacy in child care. The use of scales to identify the mother's confidence in the childcare monitoring is capable of providing exchanges of experiences and overcoming anguish and difficulties (VASCONCELOS; FLEET; MARTINS; MACHADO, 2012). Among the strategies aimed at overcoming problems, there is health education, which is a social practice and should be centered on the problematization of the context and based on the analysis of reality. Educational actions planned according to the health needs

of the population should be aimed at improving the determinants of health (ALVES; AERTS, 2011).

Some studies have developed *D3, T1, T4 software* for the execution of child health conducts. In this follow-up, the following were also elaborated: *D4 website*, E-book [D11], mobile applicationD20, *serious gameD21* and educational videosD7, D9, D19. The *software* can support the Childcare Nursing ConsultationD3; educational *software* on the Child Health Handbook (CHR) for the continuing education of childcare professionals within the scope of PHC1 and a prototype software for applied nursing consultation for actions and monitoring of child growth and developmentT4.

In view of the importance of the use of NCS in childcare consultations with children and its direct influence on the nurse's work process and the quality of the care offered, the importance of using Information Technology (IT) emerges as a support for the improvement of clinical health records and support for the development of the computerized nursing process (DOMINGOS et al., 2017). With each passing day, there are profound and constant changes, with technological innovation growing and accelerating, making available to professionals and users, the most diverse types, such as educational technologies, managerial technologies and assistive technology (BARRA et al., 2017).

It is also worth mentioning that Health Technology represents a set of systematized knowledge (scientific and empirical), in a constant process of innovation, which is applied by nursing professionals in their work process, to achieve a specific objective. The characteristic of nursing technology is peculiar, because when caring for human beings, it is not possible to generalize conducts, but rather to adapt and standardize them to the most diverse situations, in order to offer unique and appropriate care to the individual (ROJAS et al., 2016).

In the form of *a websiteD4*, a study on care for premature infants was developed to guide the family. The studyD11 built an *E-book* as a pedagogical tool to support distance learning for the safe care of children with cow's milk protein allergy and other allergies, focused on the professional training of nurses and education professionals. The D20 mobile application was developed for the first nursing consultation for the NB in PHC. The *serious game D21* was created for the care of children with Chronic Kidney Disease undergoing treatment with Peritoneal Dialysis, it can be used by the child and also for training family members and health professionals.

The educational videos developed as technologies to aid health actions were intended to: pre- and postoperative guidance for family members/caregivers of children undergoing surgical proceduresD7; first aid care for children in the school environmentD9

and learning lactation physiologyD19. These videos fostered health education through audiovisual technology, in order to produce knowledge in an accessible, playful and easy-to-understand way, which can be shared in the context of PHC, so that access to safe and early information can minimize anguish and doubts of families and children.

Thus, educational technologies, whether face-to-face or in the distance learning modality, such as in virtual learning environments, need to be used in order to focus on the student and their active and collaborative learning, facilitate the teacher's mediation attitude and the development of the relationship of partnership and collaboration between teacher-student, student-student and between groups (MASETTO, 2010). Video-type educational technologies can be strategies for health education. They are favorable to the teaching-learning process, contributing to the understanding and comprehension of care, since it induces motivation, curiosity and stimulates the participation of the caregiver (CAKMAK et al., 2018).

Nurses play a crucial role in the education process of children and their families, with the objective of providing quality care and promoting safety in care. In this process, nurses can make use of means that aim to communicate and understand the participants, and technologies are mentioned as one of the resources for this performance (LIMA, 2018). The use of intelligent technologies and the standardization/protocolization of practices are initiatives that can contribute to the promotion of pediatric patient safety, with direct repercussions on health care (WEGNER et al., 2017).

The educational booklets were produced by nine studiesD5, D6, D10, D14, D17, D23, D24, T2, T3 that covered the themes: educational material to strengthen care practices in the immunization process of autistic childrenD5; playful educational material to guide children aged 7 to 12 years and their families during the preoperative nursing visitD6; educational material with transitional care, aimed at patients and their families/caregivers, for the management of tracheostomy in pediatric patients at hospital dischargeD10; toy and story for the preparation of children who will undergo cardiac catheterization in a therapeutic play sessionD14; educational booklet with daycare educators on prevention/care in upper respiratory tract infections in childhoodD17; manual for child care on home mechanical ventilation for nurses in PHC23; educational booklet for caregivers of children with neurological sequelae caused by cancerD24; educational material in health to promote the care of premature childrenT2; educational booklets for family members of children and adolescents with leukemia for home care conductsT3.

The booklets are characterized as educational material due to easy visualization (illustrations) and appropriate language according to the target audience, given the ease of

access to information. Based on health education, the booklet is shown to be a relevant resource in the didactic-pedagogical process, that is, it is an effective and low-cost Educational Technology that boosts health education activities (JORGE, PEDROSA, 2020). Understanding the importance of these tools in the care environment and in society favors a clear, objective, and complete understanding, since individuals have knowledge linked to cultural values (WEISSHEIMER et al., 2021).

Only one study evidenced the construction of a serial albumD22 about the prevention of child overweight in primary care, and one study aimed to build clinical simulation scenariosD18 based on Deliberate Practices in Rapid Cycles aimed at family members of children dependent on technological care with tracheostomy in the process of hospital discharge.

Visual resources are important points of support in a presentation for both the spectator and the presenter, as they allow the organization of the material presented verbally by the presenter and follow the proposed sequence, in addition to illustrating important points for the understanding of the subject (SCHMIDT; PAZIN-FILHO, 2007). Thus, the serial album allows the presentation of a subject in a gradual and organized way, avoiding dispersion or confusion and facilitating the fixation of essential points (CAIRES, 2007). In relation to the text, it should be objective, use simple language, as well as serve as a script to assist the speaker regarding the subject to be addressed, subsidizing the speech (FREITAS, 2009).

Among the most varied educational strategies for preparing for home discharge, the simulation technique, widely used by health professionals and academics in the context of teaching, can be promising in the transition process of technology-dependent children from the hospital to home, since the care to be performed in the home environment requires previous training (HUNT et al., 2014). Simulation is defined as a pedagogical method that uses one or more educational techniques or equipment in a simulation experience with the aim of promoting, improving or validating a participant's progression (MEAKIM et al., 2013).

The clinical simulation methodology can be divided into three moments: preparation phase (pre-briefing and briefing), scenario (or act of simulating) and debriefing, phase in which participants share their feelings and possible improvements to important points that happened during the scenario. With the end of the simulation, the participants do not practice the scenario again after receiving the feedback and the debriefing time ends up reducing the space for practice, being many times longer than the time allocated for the development of the scenario, important limitations for the validation of learning (SAWYER et al., 2016).

To conclude, it can be inferred that thinking about care from the perspective of the use of technology allows reflection on the inherent capacity of human beings to seek innovations capable of improving quality of life, well-being and personal satisfaction (ROCHA et al., 2008). Thus, in the context listed by this review, health education can contribute to transforming reality so that health professionals support families in child health promotion care practices, considering the characteristics of each culture, through actions based on the individual needs of each child. (FALKENBERG; MENDES; MARTIN; SOUZA, 2014).

FINAL CONSIDERATIONS

The performance of nurses in the care of children in the context of PHC unveils a wide range of possibilities, as well as reflects the complexity of the conducts developed by these professionals. Thus, the use of technologies meets amplified attention, as they contribute to the performance of actions based on up-to-date innovations, which can result in functionality and effectiveness for both professionals and family members who play the role of caregivers of these children.

In recent years, more precisely from 2021 onwards, there has been a decrease in these studies, although it is understood that they may not yet be publicly available for research. From this perspective, it is considered that the trend of Brazilian theses and dissertations produced by nurses is moving towards the construction of digital technologies. But this development is happening gradually, according to the specificities and needs of the target audience, paying attention to the context in which they are inactive and their possibilities of using technologies.

It is important that new technologies continue to be developed, with a specific look at children and their numerous and distinct particularities, fostering health education for their families, in favor of care that respects and is really aimed at minimizing care maladjustments for sick children or those with chronic health conditions, and also for health promotion and disease prevention for those who need routine care.

REFERENCES

1. Abreu, F. R. H. (2019). *Desenvolvimento de tecnologia de apoio a consulta de enfermagem na puericultura* (Dissertação de Mestrado Profissional). Universidade de Fortaleza, Fortaleza.

2. Alexandre, N. M. C., & Coluci, M. Z. O. (2011). Validade de conteúdo nos processos de construção e adaptação de instrumentos de medidas. *Ciência & Saúde Coletiva, 16*(7), 3061-3068. https://doi.org/10.1590/S1413-81232011000800006

3. Almeida, S. L. P., et al. (2023). Guia para Sistematização da Assistência e Processo de Enfermagem: tecnologia educacional para a prática profissional. *Revista Brasileira de Enfermagem, 76*(4). Disponível em: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10103638/pdf/0034-7167-reben-76-s4-e20210975.pdf

4. Alpirez, L. A. (2014). *Desenvolvimento e validação de um instrumento de avaliação do recém-nascido na primeira semana de saúde integral* (Dissertação de Mestrado). Universidade Federal do Amazonas.

5. Alves, G. G., & Aerts, D. (2011). As práticas educativas em saúde e a estratégia saúde da família. *Ciência & Saúde Coletiva, 16*(1), 319-325. http://www.scielo.br/scielo.php?pid=S1413-81232011000100034&script=sci_arttext

6. Amaral, T. B. (2016). As consequências sociais relacionadas ao aumento de pacientes com Doença Renal Crônica em Terapia Renal Substitutiva. *Caderno de Saúde e Desenvolvimento, 9*(5), 85-95.

7. Andrade, D. C. M. (2020). *Ebook como tecnologia educacional no ensino do cuidado seguro da criança com alergia à proteína do leite de vaca e demais alergias no ambiente escolar* (Dissertação de Mestrado). Universidade Federal Fluminense.

8. Araujo, A. T. (2024). *Imunização da criança com transtorno do espectro autista: material educativo para equipe de enfermagem* (Dissertação de Mestrado). Universidade Estadual do Oeste do Paraná.

9. Arksey, H., & O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International Journal of Social Research Methodology, 8*(1), 19-32.

10. Bandura, A. (1994). Self-efficacy. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (2ª ed., pp. 71-81). Academic Press.

11. Barbosa, C. P. (2018). *Caderneta de saúde da criança no contexto da atenção básica: desenvolvimento e avaliação de software educativo* (Tese de Doutorado). Universidade Federal de Pernambuco.

12. Barra, D. C. C., et al. (2017). Métodos para desenvolvimento de aplicativos móveis em saúde. *Texto & Contexto Enfermagem, 26*(4). https://doi.org/10.1590/0104-07072017002260017

13. Bezerra, F. E. S. E. (2019). *Construção e validação de manual de cuidados à criança em ventilação mecânica domiciliar para enfermeiros da Atenção Primária à Saúde* (Dissertação de Mestrado Profissional). Universidade Estadual do Ceará, Fortaleza.

14. Botelho, L. L. R., Cunha, C. C. D. A., & Macedo, M. (2011). O método da revisão integrativa nos estudos organizacionais. *Gestão e Sociedade, 5*(1), 121-136. Disponível em: https://ges.face.ufmg.br/index.php/gestaoesociedade/article/view/1220

15. Brasil. (2004). *Agenda de compromissos para a saúde integral da criança e redução da mortalidade infantil*. Ministério da Saúde, Secretaria de Atenção à Saúde, Departamento de Ações Programáticas Estratégicas. Disponível em: https://bvsms.saude.gov.br/bvs/publicacoes/agenda_compro_crianca.pdf

16. Brasil. (2000). Portaria GM n. 693 de 5 de julho de 2000. Norma de orientação para implantação do método Mãe Canguru. *Ministério da Saúde*. Disponível em: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2000/prt0693_05_07_2000.html

17. Brasil. (2011). Portaria nº 2.351 de 5 de outubro de 2011. Altera a Portaria nº 1.459/GM/MS, de 24 de junho de 2011, que institui, no âmbito do Sistema Único de Saúde (SUS), a Rede Cegonha. *Ministério da Saúde*. Disponível em: http://bvsms.saude.gov.br/bvs/saudelegis/gm/2011/prt2351_05_10_2011.html

18. Brum, C. N., et al. (2016). Revisão narrativa da literatura: aspectos conceituais e metodológicos na construção do conhecimento da enfermagem. In M. R. Lacerda & R. G. S. Costenaro (Eds.), *Metodologias da pesquisa para a enfermagem e saúde: da teoria à prática* (pp. 123-142). Porto Alegre: Moriá Editora.

19. Caires, J. C. (2007). *Formação de multiplicadores: Orientações Pedagógicas*. Embrapa Tabuleiros Costeiros, Aracaju.

20. Cakmak, M., et al. (2018). Efeito de informações por meio de vídeo sobre a ansiedade e satisfação de pacientes submetidos à anestesia espinhal. *Brazilian Journal of Anesthesiology, 68*(3), 274-279. https://doi.org/10.1016/j.bjan.2018.01.001

21. Carvalho, B. M. (2021). *Aplicativo móvel sobre a primeira consulta de enfermagem ao recém-nascido na atenção básica: construção e validação* (Dissertação de Mestrado). Universidade de São Paulo, Escola de Enfermagem de Ribeirão Preto.

22. Castro, C. S. C. (2021). *Tecnologia para rastreamento precoce do autismo na consulta de enfermagem na atenção primária* (Dissertação de Mestrado Profissional). Universidade de Fortaleza.

23. Costa, C. I. A. (2023). *Validação de cartilhas educativas para familiares de crianças/adolescentes com leucemia para o cuidado domiciliar* (Dissertação de Mestrado). Universidade do Estado do Rio de Janeiro.

24. Cunha, A. G. A. (2014). *Infecções das vias aéreas superiores: construção e validação de tecnologia educacional com educadoras infantis* (Dissertação de Mestrado). Universidade Federal do Amazonas.

25. Dantas, C. N. (2016). *Software-Protótipo para o acompanhamento do crescimento e desenvolvimento infantil a partir da Classificação Internacional das Práticas de Enfermagem (CIPE)* (Dissertação de Mestrado). Universidade Federal do Rio Grande do Norte.

26. Domingos, C. S., et al. (2017). A aplicação do processo de enfermagem informatizado: revisão integrativa. *Revista Enfermería Global*(48), 620-636. Disponível em: https://scielo.isciii.es/pdf/eg/v16n48/pt_1695-6141-eg-16-48-00603.pdf

27. Errazuriz, G., et al. (2016). Características clínicas y manejo de lactantes menores de 1 año com sospecha de alergia a proteína de leche de vaca. *Revista Chilena de Pediatria, 87*(6), 449-454. http://dx.doi.org/10.1016/j.rchipe.2016.06.007

28. Falkenberg, M. B., et al. (2014). Educação em saúde e educação na saúde: conceitos e implicações para a saúde coletiva. *Ciência & Saúde Coletiva, 19*(3), 847-852. https://doi.org/10.1590/1413-81232014193.01572013

29. Ferreira, F. M. S., et al. (2023). Vacinação infantil em infográfico animado: tecnologia para a educação permanente sobre processo de enfermagem. *Revista da Escola de Enfermagem da USP, 57*, e20220423. Disponível em: https://www.scielo.br/j/reeusp/a/Q8FM39Tn7dNqFhYhq5Cwngn/?format=pdf&lang=p

30. Ferreira, L. S. (2020). *Construção e validação de conteúdo e semântica da escala de percepção de autoeficácia da família no cuidado domiciliar da criança em diálise peritoneal* (Dissertação de Mestrado). Universidade Federal de Mato Grosso do Sul.

31. Freitas, O. (2009). *Equipamentos e materiais didáticos*. Universidade de Brasília.

32. Gaíva, M. A., Alves, M. D., & Monteschio, C. A. (2019). Nursing appointments in puericulture in family health strategy. *Revista Sociedade Brasileira de Enfermagem Pediátrica, 19*(2), 65-73. Disponível em: https://journal.sobep.org.br/wp-content/uploads/articles_xml/2238-202X-sobep-19-2-0065/2238-202X-sobep-19-2-0065.x60241.pdf

33. Hunt, E. A., et al. (2014). Pediatric resident resuscitation skills improve after "rapid 96 cycle deliberate practice" training. *Resuscitation, 85*(7), 945-951. https://doi.org/10.1016/j.resuscitation.2014.02.025

34. Joanna Briggs Institute (JBI). (2015). *The Joanna Briggs Institute reviewers' manual 2015: Methodology for JBI scoping reviews*. Disponível em: http://joannabriggs.org/assets/docs/sumari/Reviewers-Manual_Methodology-for-JBI-Scoping--Reviews_2015_v2.pdf

35. Jorge, M. S. B., & Pedrosa, K. A. (2020). Cartilhas em cuidados e promoção da saúde mental na pandemia da COVID-19 como ferramenta da educação em saúde: revisão de escopo. *Revista Pesquisa, Sociedade e Desenvolvimento, 27*(7). Disponível em: https://rsdjournal.org/index.php/rsd/article/view/30256/26154

36. Lemos, R. A. (2016). *Promoção do desenvolvimento funcional de crianças nascidas prematuras: organização das bases teóricas e operacionais e construção de um guia de apoio à família* (Dissertação de Mestrado). Universidade de São Paulo.

37. Levac, D., Colquhoun, H., & O'Brien, K. K. (2010). Scoping studies: advancing the methodology. *Implementation Science, 5*(69). https://doi.org/10.1186/1748-5908-5-69

38. Lima, A. P. (2018). *Alta Responsável: Tecnologia Educacional para Pacientes e Cuidadores* (Dissertação de Mestrado Profissional). Universidade Federal do Paraná.

39. Lima, C. M. de, et al. (2021). Cuidados à criança com Transtorno do Espectro Autista: uma revisão narrativa. *Revista Internacional de Apoyo a la Inclusión, Logopedia, Sociedad y Multiculturalidad, 7*(2), 63-73. https://doi.org/10.17561/riai.v7.n2.6305

40. Lomba, L., et al. (2014). Impacto da diálise peritoneal na família com doença renal crônica: revisão integrativa da literatura. *Revista de Enfermagem Referência, 6*(3), 139-148. Disponível em: https://www.redalyc.org/articulo.oa?id=388239973013

41. Luz, R. R. (2022). *Tecnologia para orientação de familiar/cuidador de crianças submetidas a procedimentos cirúrgicos* (Dissertação de Mestrado). Universidade Federal do Paraná.

42. Magalhães, V. M. P. C. (2018). *Construção e validação de uma escala de autoeficácia materna na alimentação do lactente* (Dissertação de Mestrado). Universidade Federal de Pernambuco.

43. Más, M. F. F. (2015). *Prevenção do excesso de peso infantil na Atenção Básica: construção e validação de um álbum seriado* (Dissertação de Mestrado Profissional). Universidade de São Paulo.

44. Masetto, M. T. (2010). *O Professor na Hora da Verdade* (1ª ed.). São Paulo: Avercamp.

45. Meakim, C., et al. (2013). Standards of Best Practice: Simulation Standard I: Terminology. *Clinical Simulation in Nursing, 9*(6), s3-s11.

46. Miranda, P. S. (2022). *Elaboração e validação de vídeos sobre primeiros socorros: produção baseada na demanda de saber de professores e funcionários da educação infantil* (Dissertação de Mestrado). Universidade Federal Fluminense.

47. Moura, T. H. M. (2015). *Adaptação transcultural da self-efficacy in infant care scale para o Brasil e validação de conteúdo da versão brasileira* (Dissertação de Mestrado). Universidade Federal de Pernambuco.

48. Muniz, V. de O., Mota, T. N., & Sousa, A. R. (2023). Saúde Digital à Brasileira e a Prática Clínica em Enfermagem: Do Que Estamos Falando? *Enfermagem em Foco, 14*. Disponível em: https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1435523

49. Nietsche, E. A., Teixeira, E., & Medeiros, H. P. (2014). *Tecnologias cuidativo-educacionais: uma possibilidade para o empoderamento do/a enfermeiro/a?* Porto Alegre: Moriá.

50. Oliveira, G. T. P. (2019). *Primeira visita domiciliar ao recém-nascido: produção de tecnologia assistencial* (Dissertação de Mestrado). Universidade Federal do Paraná.

51. Pereira, I. C. (2023). *Elaboração de uma cartilha para cuidadores de pacientes pediátricos traqueostomizados na Amazônia Ocidental brasileira: estudo metodológico* (Dissertação de Mestrado). Universidade Federal Fluminense.

52. Piffero, E. L. F., et al. (2020). Metodologias ativas e o ensino de Biologia: desafios e possibilidades no novo ensino médio. *Ensino e Pesquisa, 18*(2), 48-63. Disponível em: https://periodicos.unespar.edu.br/index.php/ensinoepesquisa/article/view/3568/pdf_1

53. Pissaia, L. F., et al. (2017). Tecnologia educacional no processo de formação de enfermeiros. *Cinergis, 18*(3), 185-189. https://doi.org/10.17058/cinergis.v18i3.8865

54. Polit, D. F., & Beck, C. T. (2018). *Fundamentos de pesquisa em enfermagem: avaliação de evidências para prática de enfermagem* (9ª ed.). Porto Alegre: Artemd.

55. Rababah, J. A., Mohammed, M. A. H., & Wafa'a, F. T. (2021). A study of the relationship between nurses' experience, structural empowerment, and attitudes toward computer use. *International Journal of Nursing Sciences, 8*(4), 439-443. https://www.sciencedirect.com/science/article/pii/S235201322100096X?via%3Dihub

56. Ribeiro, P. L. (2019). *Tecnologia educativa para aprendizagem da Fisiologia da Lactação: criação e validação do conteúdo visual* (Dissertação de Mestrado). Universidade Federal de Santa Maria.

57. Rocha, N. L. (2022). *Renal Ped: protótipo de serious game para criança em diálise peritoneal* (Dissertação de Mestrado). Universidade de São Paulo.

58. Rocha, P. K., et al. (2008). Cuidado e tecnologia: aproximações através do Modelo de Cuidado. *Revista Brasileira de Enfermagem, 61*(1). https://doi.org/10.1590/S0034-71672008000100018

59. Rojas, A. P. K., et al. (2016). Tecnologias Disponíveis para acompanhamento do Desenvolvimento Infantil pelo Enfermeiro: Revisão Integrativa da Literatura. *Cadernos da Escola de Saúde, 1*(15), 64-80. Disponível em: https://portaldeperiodicos.unibrasil.com.br/index.php/cadernossaude/article/view/2455

60. Ronquillo, C. E., et al. (2021). Artificial intelligence in nursing: Priorities and opportunities from an international think-tank of the nursing and artificial intelligence leadership collaborative. *Journal of Advanced Nursing, 77*, 3707-3717. Disponível em: https://onlinelibrary.wiley.com/doi/epdf/10.1111/jan.14855?src=getftr

61. Rother, E. T. (2007). Revisão sistemática X revisão narrativa. *Acta Paulista de Enfermagem, 20*(2), v-vi. https://doi.org/10.1590/S0103-21002007000200001

62. Saarinen, K. M., et al. (1999). Alimentação complementar em maternidades e o risco de alergia ao leite de vaca: um estudo prospectivo com 6209 bebês. *Jornal de Alergia e Imunologia Clínica, 2*(104), 457-461.

63. Santos, L. C., et al. (2014). Percepção das mães de prematuros sobre a visita domiciliar antes e após a alta hospitalar. *Investigação Educacional em Enfermagem*, Londrina. http://www.scielo.org.co/scielo.php?pid=S012053072014000300004&script=sci_arttext&tlng=pt Acesso em: 03 jun. 2024.

64. Santos, M. N., et al. (2021). Vivências de enfermeiros na consulta de puericultura: percepção sobre os sinais de risco/atraso para o desenvolvimento infantil. *Revista Uruguaya de Enfermería*, 16(1). https://rue.fenf.edu.uy/index.php/rue/article/view/302/338 Acesso em: 27 mai. 2024.

65. Salbego, C., et al. (2018). Care-educational technologies: an emerging concept of the praxis of nurses in a hospital context. *Revista Brasileira de Enfermagem*, 71(Supl 6), 2666-74. https://www.scielo.br/j/reben/a/zPJy9NvkcDJVw9Jr7ZKhNQs/ Acesso em: 24 mai. 2024.

66. Salbego, C. (2016). Tecnologias cuidativo-educacionais: a práxis de enfermeiros em um hospital universitário [Dissertação]. Universidade Federal de Santa Maria. http://coral.ufsm.br/ppgenf/images/Dissertacoes_alunos/Dissertacao_Cleton_Salbego.pdf Acesso em: 30 mai. 2024.

67. Schmidt, A., & Pazin-Filho, A. (2007). Recursos visuais. *Medicina*, 40(1), 32-41.

68. Silva, F. P. M. A. (2022). Simulação clínica no preparo de familiares de crianças com traqueostomia em processo de alta hospitalar [Dissertação]. Mestrado Profissional em Enfermagem Assistencial, Universidade Federal Fluminense.

69. Silva, M. M., et al. (2020). Atuação do enfermeiro na consulta de puericultura. *Brazilian Journal of Surgery and Clinical Research*, 32(2), 175-179. https://www.mastereditora.com.br/periodico/20201004_092943.pdf Acesso em: 27 mai. 2024.

70. Silva, R. D. M. (2015). Construção e validação de brinquedo e história para o cuidado à criança submetida a cateterismo cardíaco em sessão de brinquedo terapêutico [Dissertação]. Programa de Pós-Graduação em Enfermagem, Centro de Ciências da Saúde, Universidade Federal de Pernambuco.

71. Sawyer, T., et al. (2016). More than one way to debrief: A critical review of healthcare simulation debriefing methods. *Simulation in Healthcare*, 11(3), 209-217.

72. Silva, S. F. (2021). Construção e validação de instrumento de sistematização da assistência de enfermagem à criança com alergia a proteína do leite de vaca [Dissertação]. Mestrado Profissional em Tecnologia e Inovação em Enfermagem, Universidade de Fortaleza.

73. Sousa, S. M. (2020). Construção e validação de cartilha educativa para o manejo e condução de criança com sequelas neurológicas causadas pelo câncer [Dissertação]. Mestrado Profissional em Gestão em Saúde, Programa de Pós-Graduação em Saúde Coletiva, Centro de Ciências da Saúde, Universidade Estadual do Ceará.

74. Souza, M. T. D., Silva, M. D. D., & Carvalho, R. D. (2010). Revisão integrativa: o que é e como fazer. *Einstein (São Paulo)*, 8(1).

75. Teixeira, L. F. S., Rodrigues, I. L. A., & Nogueira, L. M. V. (2021). Tecnologia educativa sobre concepção oral: construção compartilhada com enfermeiras assistência reprodutiva. *Revista Brasileira de Enfermagem*, 75(5). https://www.researchgate.net/publication/330139910_Educational_technology_on_oral_contraception_construction_shared_with_nurses_reproductive_assistance_Tecnologia_educacional_sobre_contracepcao_oral_construcao_compartilhada_com_enfermeiros_da_assisten Acesso em: 23 mai. 2024.

76. Tenório, A. P. S. (2016). Construção e validação de um website sobre cuidados com o prematuro [Dissertação]. Programa de Pós-Graduação em Saúde da Criança e do Adolescente, Centro de Ciências da Saúde, Universidade Federal de Pernambuco.

77. Vasconcelos, V. M., et al. (2012). Puericultura em enfermagem e educação em saúde: percepção de mães na estratégia saúde da família. *Esc Anna Nery*, 16(2), 326-331. https://doi.org/10.1590/S1414-81452012000200017 Acesso em: 02 jun. 2024.

78. Vasques, M. C. M. Z. (2020). Construção e validação de livreto educativo lúdico para realização da visita pré-operatória de enfermagem [Dissertação]. Universidade Estadual Paulista "Júlio de Mesquita Filho", Faculdade de Medicina de Botucatu.

79. Wegner, W., et al. (2017). Segurança do paciente no cuidado à criança hospitalizada: evidências para enfermagem pediátrica. *Revista Gaúcha de Enfermagem*, 38, e68020. https://doi.org/10.1590/1983-1447.2017.01.68020 Acesso em: 04 jun. 2024.

80. Weissheimer, G., et al. (2021). Informational support for families of children with autism spectrum disorder. *Revista Gaúcha de Enfermagem*, 42. https://www.scielo.br/j/reben/a/VgmBNksLCTLNxs4cFzcf54r/?format=pdf&lang=pt Acesso em: 04 jun. 2024.

81. Whittemore, R., & Knafl, K. (2005). The integrative review: updated methodology. *Journal of Advanced Nursing*, 52(5), 546-553. https://doi.org/10.1111/j.1365-2648.2005.03621.x Acesso em: 04 jun. 2024.

82. Wightman, A., et al. (2019). Caregiver experience in pediatric dialysis. *Pediatrics*, 143(2), e20182102. https://doi.org/10.1542/peds.2018-2102 Acesso em: 04 jun. 2024.

83. Zavaleta-Ramírez, P., et al. (2014). Confiabilidad interevaluador del K-SADS-PL-2009 / trastornos del espectro autista (TEA). *Salud Mental*, 37(6), 461-466. https://www.researchgate.net/publication/305864645_Confiabilidad_interevaluador_del_KSADS-PL-2009trastornos_del_espectro_autista_TEA Acesso em: 24 mai. 2024.