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Technological inventions of family caregivers from the perspective of home care professionals

Invenções tecnológicas de cuidadores familiares na perspectiva de profissionais da atenção domiciliar

Invenciones tecnológicas de los cuidadores familiares desde la perspectiva de los profesionales del cuidado domiciliario

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Abstract

Objective: To describe the technological inventions developed by family caregivers from the perspective of home care professionals, discussing them in the light of the care needs at home. **Method:** qualitative, multicenter research, supported by the theoretical model of the Basic Human Needs of Wanda Horta. The data were obtained from interviews with 52 professionals from Home Care teams in four municipalities of Minas Gerais, which were submitted to Content Analysis. **Results**: were identified 27 inventions created by caregivers with materials/resources existing at home. Most of the inventions were motivated by the psychobiological needs of movement, positioning, protection and comfort, feeding, physiological eliminations, hygiene and drug therapy. Other inventions were motivated by psychosocial and psychospiritual needs to improve communication between caregiver and family member, provide leisure, distraction, and spiritual comfort. **Conclusions/Implications for practice:** the processes of invention of caregivers show reflective awareness by articulating, unsystematically and intuitively, existing resources and objects at home, generating strategies or products similar to existing technologies. These inventions can be evaluated, stimulated, guided or refuted by health professionals involved in home care on a daily basis.

Descriptors: Home Care; Family Caregiver; Determination of Health Needs; Technology Applied to Health Care; Inventions.

Resumo

Objetivo: descrever as invenções tecnológicas desenvolvidas por cuidadores familiares na perspectiva de profissionais da atenção domiciliar, discutindo-as a luz das necessidades de cuidado no domicílio. **Método:** pesquisa qualitativa, multicêntrica, apoiada no modelo teórico das Necessidades Humanas Básicas, de Wanda Horta. Os dados foram obtidos a partir de entrevistas com 52 profissionais de equipes de Atenção Domiciliar de quatro municípios de Minas Gerais, submetidas à Análise de Conteúdo. **Resultados:** foram identificadas 27 invenções criadas por cuidadores com materiais/recursos existentes no domicílio. A maior parte das invenções foi motivada pelas necessidades psicobiológicas de movimentação, posicionamento, proteção e conforto, alimentação, eliminações fisiológicas, higiene e terapêutica medicamentosa. Outras invenções foram motivadas pelas necessidades psicossociais e psicoespirituais para melhorar a comunicação entre o cuidador e o familiar, proporcionar lazer, distração e conforto espiritual. **Conclusões/Implicações para a prática:** os processos de invenção de cuidadores explicitam consciência reflexiva ao articularem, assistemática e intuitivamente, recursos e objetos existentes no domicílio, gerando estratégias ou produtos semelhantes a tecnologias existentes. Estas invenções podem ser avaliadas, estimuladas, orientadas ou refutadas pelos profissionais de saúde cotidianamente envolvidos no cuidado domiciliar.

Descritores: Assistência Domiciliar; Cuidador Familiar; Determinação das Necessidades de Saúde; Tecnologia Aplicada aos Cuidados de Saúde; Invenções.

Resumen

Objetivo: describir las invenciones tecnológicas desarrolladas por los cuidadores familiares desde la perspectiva de los profesionales de la atención domiciliaria, discutiéndolas a la luz de las necesidades de atención en el hogar. **Método:** investigación cualitativa, sustentada en el modelo teórico de las Necesidades Humanas Básicas. Los datos fueron obtenidos a partir de entrevistas con 52 profesionales de equipos de Atención Domiciliaria de cuatro municipios de Minas Gerais, sometidos al Análisis de Contenido. **Resultados:** se identificaron 27 inventos creados por cuidadores con materiales disponibles en casa. La mayoría de los inventos fueron motivados por las necesidades psicobiológicas de movimiento, posicionamiento, protección y comodidad, alimentación, eliminaciones, higiene y farmacoterapia. Otros inventos fueron motivados por las necesidades psicosociales y psicoespirituales de mejorar la comunicación entre el cuidador y el familiar, proporcionando entretenimiento, distracción y consuelo espiritual. **Conclusiones/Implicaciones para la práctica:** las invenciones de los cuidadores muestran una conciencia reflexiva al articular, de manera asistemática e intuitiva, los recursos y objetos existentes en el hogar, generando estrategias o productos similares a las tecnologías existentes. Estas invenciones pueden ser evaluadas, estimuladas, guiadas o refutadas por profesionales de la salud.

Descriptores: Atención Domiciliaria de Salud; Cuidador Familiar; Evaluación de Necesidades; Tecnología para la Atención de la Salud; Invenciones.

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INTRODUCTION

Home Care (HC) is a modality of attention that transfers care to the home. It has expanded by reason of the need for economic sustainability of health systems, due to the high cost of the hospital model and because it allows the continuity of care at home, with technological support of different densities, from a perspective of promoting quality of life and/or rehabilitation and, also, palliative care.[1-3]

In recent years, there has been an investment in the production of new technologies for home care, progressively contributing to dehospitalization processes. Among these new technologies, we highlight those used for monitoring, assisted ventilation, feeding; peritoneal dialysis and those that require teleinformatics and internet, for the practice of telemedicine, robotic technology, mobile technologies with applications on smartphones, among others.[4]

However, even with the investment in complex technological artifacts, there is evidence that there is a precariousness of inputs and technologies of lesser technological complexity, indispensable for comprehensive care at home, mobilizing teams and families in a process of inventiveness in the act of caring.[3,5,6]

Technologies have been conceptualized as a set of knowledge, constituted for the generation and use of products, as well as to organize human relations, that is, in addition to the equipment/products, the knowledge and actions necessary to operate them must be included.[7] Inventions, on the other hand, are defined as the creations or recompositions of a pre-existing device or process.[8]

Caregivers' inventions enable care that seeks to meet basic human needs of dependent family members, the ultimate object of HC. The movement of taking advantage of pre-existing materials in a creative exercise of caregivers can reveal the absence or insufficiency of investments to meet the needs of care in this scenario, which seems to be established as a function of technologies that the family incorporates in its relationships with the team or undertakes in inventive processes initiated with pre-existing technologies and incorporated into health services.[9,10]

In this direction, the theoretical model of Basic Human Needs (BHN), proposed by Wanda de Aguiar Horta,[10] represents a contribution to analyze technological inventions in HC. This is because family caregivers show themselves as inventive, creative subjects, capable of judging, making decisions and taking actions to create something new, when assuming the care of a dependent family member, in dialogue with HC professionals. This theoretical conception considers that the human being has psychobiological, psychosocial and psychospiritual needs, which, when not met, lead to instability in the life cycle. The existence of a state of tension is assumed, given human nature and its vital phenomena, through the demands and the requirement to provide care to meet them, when they are affected.[10]

Faced with this problem, one justification of this study was the need to know and recognize the technological apparatuses invented by family caregivers of HC users, due to the scarcity of literature on inventions in this modality of care. When they exist, they analyze the creations made by professionals, discussing the implications for health work.[9] There is, therefore, a gap in the production of evidence on technological inventions made by family caregivers, which raises questions that can be investigated.

Another justification was the possibility of investigating family inventions that could be supported and valued in the home environment. To think about the potential of incorporating them, since, one dares to create, innovate, or adapt instruments that they will use in the care, aiming to improve them, in an attempt to have a more modern, more comfortable, safer way and with better and effective conditions to care for the dependent family member at home.[11,12] In addition, it is urgent to rethink the HC financing policies, in order to demonstrate the shortcomings for the external technological apparatus, fundamental to the sustainability of an effective and safe practice.

Thus, in this study, the objective was to describe the technological inventions developed by family caregivers from the perspective of home care professionals.

METHOD

This is a multicenter research with a qualitative approach, whose general objective was to describe the technologies developed by different actors in home health care. In this manuscript, the focus was specifically on the technologies developed by family caregivers.

The research team consisted of eleven nurses (four doctors, one doctoral student, one master, three master's students, one specialist and one nursing student) linked to two research centers that operationalized the research protocol. All team members had previous experience in qualitative research, but training strategies were developed through workshops and joint meetings for conceptual and methodological alignment on data collection and analysis techniques.

Specifically, the discussion on the technologies developed by caregivers was based on the theoretical model of Basic Human Needs (BHN),[10] which is based on the laws of balance, holism and adaptation. This model contributed to the classification and analysis of caregiver creations in the context of HC, based on the premise that human beings have needs that are grouped into psychobiological, psychosocial and psychospiritual. These needs, when affected, interact with their external environment, always seeking forms of adjustment, resources and comprehensive care to reestablish or maintain balance.[10]

The research settings were the Home Care Services (HCS) of four Brazilian municipalities in the state of Minas Gerais – Belo Horizonte, Contagem, Juiz de Fora and Pará de Minas –, intentionally defined because they are services with established experiences since the implementation of the National Home Care Policy in Brazil.[2]

The HCS serve, in an indistinct way, audiences of various ages, clinical-assistance profile and with different care demands. To be admitted to a HCS, the patient must be temporarily or permanently restricted to bed or home, or in a degree of vulnerability in which HC is considered the most opportune offer

for treatment, palliation, rehabilitation, prevention of injuries; the presence of the caregiver is a prerequisite.[2]

Fifty-two professionals participated in the study, five of whom were HCS coordinators and 47 were team members. The study sample was intentional, guided by the inclusion criterion of being a professional member of a multi-professional HC team in the municipality; and as exclusion, if they had been working in the HCS for less than a month. In two municipalities, where there was more than one team, the coordination was asked to indicate the teams of those with greater variability in the profile of the assisted users, and two teams were indicated in each of these municipalities. All the professionals approached had been with the service for one full month or more. The service professionals agreed to participate spontaneously, without refusals or absences.

To achieve the objective of this study, data were obtained through semi-structured interviews[13] with the participants, conducted between January 2019 and August 2020, guided by a script prepared by the researchers with questions that dealt with the technologies used daily in the assistance offered to the dialogue with the family, with emphasis on the technological inventions of family caregivers to meet basic human needs and achieve the objectives and goals of HC. Sociodemographic and clinical information of the individuals they served was not collected, being assumed the profile of users for the provision of HC services described by the National Home Care Policy.[2]

Due to the COVID-19 pandemic, in line with ethical restrictions and definitions, the last four interviews took place remotely, on a virtual platform (Google Meet). The average time of each one was 25 minutes, totaling twelve hours and 46 minutes of recording documented in audio files. Two nurses were interviewed twice, at different times, in order to clarify information. The transcribed interviews were read and analyzed by the research team.

For data analysis, the procedures of Content Analysis were adopted.[14] Initially, each researcher performed exploratory readings and pre-coding of the interviews, individually, and then the codings were done collectively in meetings in the group of researchers.

The caregiver inventions cited by the participants were coded by the deductive-inductive analytical process, considering the categories of the theoretical model of BHN.[15] The cross-sectional reading of the empirical material proceeded to the articulations with the elements of convergence of the aforementioned theoretical model and the creative context of the inventions was apprehended, as well as the intentionality of their use in the setting of HC assistance. The validation of the findings was obtained through joint discussion and consensus reached by the researchers on the analytical codes.

The research was approved by the Research Ethics Committee of the Federal University of Minas Gerais, under the CAAE opinion number: 44483315.3.0000.5149 and protocol 3.338291, and obtained a Letter of Consent from the municipalities in the study settings. For its execution, we respected the ethical precepts defined by the Resolutions of the National Health Council, No. 466, of 12/12/12,[16] and No. 510, of 04/07/2016.[17] To guarantee anonymity, we refer to the participants' citations by alphanumeric codes, in which the first letter and number refer to the municipality of the HC service, followed by the initial letter of the professional category and number of the interview in the database (Example: M3NU2 - municipality 3, nutritionist 2).

RESULTS

Of the 52 participating professionals, five were HCS coordinators and 47 were professionals who were members of HC teams – 15 nurses, nine nursing technicians, eight physicians, four physiotherapists, four speech therapists, two nutritionists, one occupational therapist, one psychologist, one social worker, one dentist and one administrative assistant. Most of the participants were female (43), married (21), and had been working in the services for between one month and 11 years. In municipality M4, three professionals had been working for just over a month.

From their experiences in the HCS with patients of different ages and clinical-assistance profiles - most with dependencies, requiring the mediation of a responsible family caregiver -, the participants reported that caregiver inventions are common. There are adaptations of existing instruments, objects, and materials in the home environment, with remodeling or reuse, to meet the needs of family members dependent on home care. For the psychobiological BHN of movement, positioning, protection, and comfort of the bedridden patient, they cited:

> *The patient does not have a hospital bed and then he makes some adaptations to raise the headboard with some blanket rolls.*(M2FO2).
>
> *They created a hospital bed with six bases on the headboard, underneath, made of wood. Every time she needed to be raised, they put a wood: ten degrees, 15 degrees, 30 degrees, 40 degrees, up to 50 degrees, with a fixed backrest, so it was a bed adapted by a gentleman.* (M2FI2)
>
> *He asked permission, went outside, I heard a little motor noise, five, ten minutes at most, this gentleman was back with a stool that he had just made, he just measured the height for her foot and came back with that footrest, the exact height that the patient needed. He had everything at home to do it.* (M3FO1O)

To meet the BHN of feeding, elimination, body hygiene, therapy, transfer, and ambulation in the home environment, they mentioned:

> [...] *a pipe even, fixed there with the 'elbow' [pipe connection], the pipe, the ' elbow' and the pipe on the bar, and he did that, including for getting up, you know, changing position. And it was excellent!"* (M2ME4)
>
> [...] *a patient who could not manage to sit in the bath chair. You know those swimming pool chairs* [...] *Sun lounger* [...] *they adapted it for him, took him out, put wheels on the*

> *sun lounger, made it higher, because he had this difficulty, then they would put him on the sun lounger, take him to the bath, gave him a bath and came back.* (M2ME4E)
>
> *They put a nail in the wall and put an IV there or they use a bamboo.* [...] *there is a family there who put a piece of wood, a bamboo with a nail and it served as an IV support.* (M5ENF3)
>
> *There's a little square, where they put the medicines in a little pocket and put "here in the morning; this one in the afternoon".* (M4ME1)

Changes in the home environment were mentioned to allow air circulation or temperature maintenance.

> [...] *they put in a window to help the circulation of the environment, so it doesn't get so muggy* (M2ME3)
>
> *Patient has asbestos tile, he put Styrofoam plate on the ceiling, on top of the patient, because it was not very hot. He put Styrofoam plates on the ceiling. Then the house has the timbers. Then he took the wood, put it on the wire and tied the electric heater there to air-condition the room, you know?* (M5ENF4)

Some inventions aimed to support psychosocial BHN, such as communication between caregiver and patient, and to respond to basic recreation and leisure needs.

> *House bell system, you know! Placed on the patient's bed*. (M5ENF4)
>
> *We have had patients who, in order to improve self-esteem, the patient is very depressed, who [the family] brought the chicken from his house to the house where he was, because he passes his hand on the chicken, he gets better*. (M4FO1)
>
> *There are patient caregivers who, when the Christmas season comes, decorate the patient's room all over, even the diet support, for Christmas*. (M4FO1)
>
> *The child is one year and six* [months old], *with a congenital neuromuscular disease and the uncle made a support for the tablet with PVC pipe. Before, it was on the wire frame of the crib, but as the wire frame is light, this tablet was at risk of falling on the child. He made the frame from the floor with PVC pipe and put the tablet*. (M4FI1).

In only one report, it was identified that there was specific guidance, with professional encouragement, for a family caregiver creation. Therefore, they are configured as inventions that started from the perception of caregivers, either by their previous experience of having worked in health services, or by their interpretation of the functionality of objects and inputs to meet affected BHN and respond to the purpose of home care. In Chart 1, we present a summary of the main creations of family caregivers, organized according to the BHN of users served by HC.

This study found that the inventions of family caregivers were allied to the basic human and therapeutic needs of the family member, affected by the patient's condition of dependence, highlighting: pillows, blanket rolls, long sock, stool, support bench and elastic band for body mechanics and motility care; bed protection rails and foam mattress cutouts for the promotion of physical integrity; invention from lounger chair for locomotion; mini-table and wooden ruler with hook, with the purpose of enabling administration of nutritional support; medicine box and nail, bamboo or wooden ruler, as an alternative to the support for gravitational infusion of intravenous medications; Velcro® tape and chair with sanitary seat, in attention to eliminations; installation of window and fixing of electric heater, in view of environmental needs; alarm / bell for access to communication; support for electronic device, touch pets and communication when feeding the patient to offer recreation/leisure.

These inventions were developed with available material resources, inherent to the peculiarity of each home and creativity, motivated by the demands on the caregiver to maintain care, guarantee attention to the basic human needs of family members dependent on home care.

DISCUSSION

Caregiver inventions were motivated by the family member's care needs, most of them to meet affected psychobiological needs related to body mechanics and motility.[10] Those developed to position or move bedridden patients, due to chronic situations, with dependencies for self-care, which require caregiver interventions and constant dialogue with professionals from HC teams, stand out.[18]

The loss of the ability to move, observed in the researched context, constitutes an imbalance that generates need, in the conception of Horta,[10] and was related to responses to trauma, chronic illnesses, with neurological impairments or prolonged hospitalizations, highlighting elderly and bedridden people as the largest clientele of HC services. Dependence led the family caregiver to seek satisfaction for the needs presented in order to maintain dynamic balance in space and time.[10] It stimulated inventive processes at home that were associated with the idea of providing safety and well-being, in a functional way, according to the needs of the family member, seeking to restore, as best as possible, independence in the activities of daily living.[12]

The types of inventions cited are revealed by the use of artifacts to change the decubitus or promote comfort (pillows, blanket rolls) or involve those that modify, for example, the architecture of a common bed, making it articulated; simulating support bars, footrests. These inventions may require knowledge, skills, guidance/supervision from health professionals and are intended to support daily care by maintaining proper position of the body or a body part. The positioning of patients is a therapeutic intervention that goes back centuries and the use of pillows stands out as an artifact for comfort, protection or to prevent falls. The action of well-positioning seeks to promote the comfort of

Chart 1. Basic Human Needs met with inventions by family caregivers, Minas Gerais, Brazil, 2022.

BHNA	Inventions of Family Caregivers in BHNA care
Psychobiological Needs:	
Body mechanics and motility	- Use of pillows and blanket rolls to elevate the patient; - Use of materials purchased or existing in the household for simple bed head elevation (brick, rope, wood, and others).
	- Long socks: use for positioning and cervical control; - Construction of a stool for proper positioning of the patient's feet when sitting.
	- Support bar for walking, made with PVC pipes and fittings (pipes and elbows); - Support bar, fixed on the wall near the patient's bed, so that he/she can lie down and get up without assistance, allowing independence/autonomy; - Elastic bands attached to pins fitted to the ceiling and walls next to the bed, for exercises and movement in bed.
Physical integrity	- Bed rails, made of wood or other materials; - Foam mattress cut-outs - egg crate - for positioning and protection on the rails.
Locomotion	- Pool lounger chair: addition of wheels, height lift for use in transportation and in sprinkled bathing.
Nutrition	- Mini-table: constructed of wood and fixed on the wall next to the bed to support diet administration (support); - Wooden ruler with hook: use for gravitational diet administration / 'gavage' diet administration in absence of support
Therapeutics	- Making a medication holder: to support medication administration; - Nail fixed on the wall near the bed; bamboo; wooden ruler to support intravenous medication bottle.
Eliminations	- Velcro® tape: used for attachment of disposable male urinary incontinence device; - Chair with sanitary seat; cover; removable external collector fitting and with wheels.
Environment	- Renovation of house, with placement of window - to ventilate room; - Electric heater fixing system using Styrofoam plates on ceiling and wires and wood.
Psychosocial Needs	
Communication Recreation/ Leisure	- Alarm device/bell: to facilitate communication with caregiver; - Communication mode between caregiver and patient, with meaningful expressions that make care efficient (act of feeding the patient); - Touch pets for stimulation, distraction, and well-being. - Device with PVC tubes, with the base on the floor extending to the crib to support Tablet and enable the child to watch videos.

LEGEND: BHNA - Basic human needs affected; PVC - Polyvinyl chloride.
SOURCE: Prepared by the authors (2022)

the person and the satisfaction of fundamental human needs, such as oxygenation, feeding and eliminations.[10,19]

The support bars were created from existing materials and, when fixed to the wall, aimed to be auxiliary means in the need for locomotion, and to reduce the risk of falls by patients with impaired physical mobility, as in cases related to some neurological impairment. They are considered assistive technologies and indicated to meet the needs of movement/positioning in the bath, to wear clothes with greater safety and independence, by the guidelines of the Ministry of Health.[20]

The inventions undertaken for the care related to the needs of feeding, elimination, hygiene/bath and drug therapy were also expressive and consistent with the profile of the patients attended by the HC of this and other studies.[18,21]

The coexistence of caregivers with difficulties associated with the acquisition of food, infusion pumps and auxiliary items, such as serum support and diet equipment, may be what compromises the nutrition of the family member with impaired swallowing, who was prescribed food supplementation after discharge. Nasogastric/enteral nutritional support may require high-cost technologies, such as industrialized diet and supplies to enable the feeding route and its administration. Not all the materials required are available to families, such as support for positioning bottles and gravitational infusion of diets, stimulating the caregiver's creations to successfully meet the nutritional need, keeping the family member in HC and preventing hospitalizations.[21,22]

The supports made with wood and nails affixed to the wall near the bed, to place the diet instead of the industrialized

support, are low cost, and make it possible to meet the need for feeding and/or fluid infusion. The use of nails was reported to be a common condition in the context of HC. It is an object present in homes that, among the most different uses, is also suitable for the function of support for the administration of diets and intravenous medications, at home, avoiding the search by caregiver for other points of the health care network (HCN). Although its use for this purpose does not compromise the objective of care, it demonstrates, however, the lack or non-availability of basic supplies for families and the need for safety-related assessments to mitigate adverse events.[9]

The use of household chairs with an added toilet seat; cover; or external collector attachment aimed to support the family member's need for elimination and bathing. The wheeled lounger chair, common in swimming pools, was intended to transport and enable sprinkled bathing of patients with difficulty remaining in a sitting position. These are inventions that demonstrate innovative potential, however, the caregiver deals with the risk of the dependent family member falling if the material of the chairs is slippery when in contact with soap and water. Patient safety in HC is challenging due to the peculiarity of the home, revealing the importance of the technical-scientific improvement of professionals and of others involved in patient care.[23]

Reducing the risk of unnecessary harm to the health of HC users is one of the concerns when analyzing caregiver inventions. This concern is growing worldwide and applies to all health care settings. In Brazil, patient safety at home is the subject of a specific publication by the Ministry of Health. We emphasize that there is little research from the perspective of safe care management for patients with dependencies in the HC setting. In this sense, there is a need for studies to address this issue, especially with regard to the creation of a culture of patient safety in HC, including in the education and training of nursing professionals.[24,25]

Home Care requires resources that can be made available by the service itself, by others in the HCN, obtained or created by the family to ensure the quality of care. There is evidence that nurses produce technologies at home in order to transform reality and provide continuity of care. These may be necessary due to insufficient resources and lack of investment to offer options that already exist and are applied in other spaces.[5]

Caregivers are driven to a process of inventiveness in the act of caring, mobilized by the interpretation of what they deem necessary to meet certain patient needs. In this process, a creative practice was revealed with inventions associated with facing new needs or situations that did not exist before in the home. In other cases, they envisioned the adaptation of instruments to pre-existing "models" by imitating the inputs used in health services. Thus, there is the use of domestic resources in a reproduction of what is observed in the hospital environment, but with simplification. Their use was linked to the response of financial fragility and the fulfillment of the BHN of feeding, movement, comfort, protection, thermoregulation, leisure, elimination and hygiene.[26]

The use of simplified technologies at home leads to the understanding of the creative force of new processes and products by nursing, as a doing that carries a pedagogical intentionality.[27]

The impulse to invent to meet basic human needs with the required care reveals an environment in which the shortages or insufficiencies of the supply of resources and inputs direct to the use of domestic objects as means for health care. In this relationship, the judgment made by the caregiver as to the best way to meet the needs of the family member assisted by the HC and the existence of the means to respond to this purpose are contrasted.

This study explains the potential for invention of family caregivers in home care, important for the creation of new practices, contemplating the peculiarity of this environment, which benefits the interaction and continuity of care for families and users.[9] However, there is a need for investment in this type of care, given its relevance to health systems and ways of providing care.

It is noteworthy that not all the situations that create patient needs, encouraging inventions, mostly as a substitute for existing devices on the market, nor the causalities related to family care management, underfunding of the health sector and the consequences for patient safety were explored.

It should be added that the inventions analyzed were extracted from the perspective of health professionals based on their observations, experiences and perceptions of working in HC, and not on home visits with direct observation by the researchers, which can be considered a limitation. Another limitation is that the transcribed interviews were not shared for review by the research participants.

CONCLUSION AND IMPLICATIONS FOR PRACTICE

From the perspective of HC professionals, the inventions developed by caregivers are allied to the requirement of caring for the family member in a condition of dependence, according to affected needs. This study brought to light the existence of aptitude and creative capacity of caregivers, exposing the potential they have for creating health technologies when caring for their dependent family members at home. These attributes were recognized as a contribution to the assistance offered by HC, as they allow the continuity of care at home, even in the face of challenges of insufficient health inputs and technologies.

The technological inventions of family caregivers should, however, be evaluated by the professionals involved in home care on a daily basis, and can be encouraged, guided or refuted. On the one hand, they can be seen as innovative creations, with the potential to be used by other families, given their functionality, low risk and cost, or, on the other hand, as risky improvisations.

With these conclusions, we emphasize the need to invest in new studies, since the theme of technologies invented by families in the context of Home Care is little explored and shows potential for the discovery of innovations that can be incorporated by other families and the health system.

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