

Preparing caregivers for dehospitalization of technology-dependent patients: perspective of Home Care professionals

Preparo de cuidadores para desospitalização de pacientes dependentes de tecnologia: perspectiva de profissionais da Atenção Domiciliar

How to cite this article:

Sato DM, Teston EF, Andrade GKS, Marcon SS, Giacon-Arruda BCC, Silva JL, et al. Preparing caregivers for dehospitalization of technology-dependent patients: perspective of Home Care professionals. Rev Rene. 2022;23:e78658. DOI: <https://doi.org/10.15253/2175-6783.20222378658>

 Daniela Miyuki Sato¹
 Elen Ferraz Teston¹
 Gleice Kelli Santana de Andrade¹
 Sonia Silva Marcon²
 Bianca Cristina Ciccone Giacon-Arruda¹
 Joice Lourenço da Silva¹
 Sueli Aparecida Frari Galera³

¹Universidade Federal de Mato Grosso do Sul.
Campo Grande, MS, Brazil.

²Universidade Estadual de Maringá.
Maringá, PR, Brazil.

³Universidade de São Paulo.
São Paulo, SP, Brazil.

Corresponding author:

Daniela Miyuki Sato
Avenida Costa e Silva, s/n, Bairro Universitário,
CEP: 79070-900. Campo Grande, MS, Brazil.
E-mail: danielamiyukisato@gmail.com

Conflict of interest: the authors have declared that there is no conflict of interest.

EDITOR IN CHIEF: Ana Fatima Carvalho Fernandes
ASSOCIATE EDITOR: Luciano Marques dos Santos

ABSTRACT

Objective: to know how the preparation of caregivers of technology-dependent patients is conducted from the perspective of professionals from the Home Care Service. **Methods:** a qualitative study, conducted with nine professionals from the Home Care Service teams. The data was collected through semi-structured interviews and submitted to Content Analysis, thematic modality. **Results:** two categories emerged: Strategies and resources used in the preparation of caregivers for dehospitalization and Factors that influence the preparation of caregivers for dehospitalization, which show that this preparation involves the use of soft technologies, based on the interaction and valorization of learning, besides aspects related to the organization of the service in the intra-hospital and home contexts. **Conclusion:** the preparation of caregivers is permeated with concern for facilitating the acquisition of knowledge and skills for care at home; it involves the use of specific resources and strategies and is influenced positively by technologies and negatively by factors related to hospital structure and organization. **Contributions to practice:** the findings of the study can subsidize the practices of multi-professional teams working in the home scenario, since they point out aspects that facilitate and hinder the preparation/training of caregivers.

Descriptors: Home Care Services; Caregivers; Patient Care Team; Biomedical Technology.

RESUMO

Objetivo: conhecer como é conduzido o preparo de cuidadores de pacientes dependentes de tecnologia na perspectiva de profissionais do Serviço de Atenção Domiciliar. **Métodos:** estudo qualitativo, realizado com nove profissionais das equipes do Serviço de Atenção Domiciliar. Os dados foram coletados mediante entrevista semiestruturada e submetidos à Análise de Conteúdo, modalidade temática. **Resultados:** emergiram duas categorias: Estratégias e recursos utilizados no preparo dos cuidadores para a desospitalização e Fatores que influenciam o preparo dos cuidadores para a desospitalização, as quais mostram que este preparo envolve o uso de tecnologias leves, pautadas na interação e valorização da aprendizagem, além de aspectos relacionados à organização do serviço no contexto intra-hospitalar e domiciliar. **Conclusão:** o preparo dos cuidadores é permeado de preocupação em facilitar a aquisição de conhecimentos e habilidades para o cuidado no domicílio; envolve a utilização de recursos e estratégias específicas e é influenciado positivamente por tecnologias e negativamente por fatores relacionados à estrutura e organização hospitalar. **Contribuições para a prática:** os achados do estudo podem subsidiar as práticas das equipes multiprofissionais que atuam no cenário domiciliar, uma vez que apontam aspectos que facilitam e dificultam o preparo/treinamento dos cuidadores.

Descritores: Serviços de Assistência Domiciliar; Cuidadores; Equipe de Assistência ao Paciente; Tecnologia Biomédica.

Introduction

Chronic conditions, at any stage of life, lead to increased demand for continuous care, triggering significant changes in family dynamics and in the health care process, in addition to impacting public policies and the organization of the work process in the health sector⁽¹⁾. This is because it becomes essential to implement a continuum of care beyond the hospital context, which includes the appreciation of particularities related to the family and home context⁽¹⁻²⁾.

In this regard, Home Care plays a significant role in the process of transition from hospital care to home care and is configured through the sharing of knowledge as an intermediary between patients, caregivers, multiprofessional teams and the health system⁽³⁾. In Brazil, Home Care is organized into three levels that complement each other; in the first, care must be offered by Primary Health Care and, in the second and third levels, there is support from multidisciplinary teams of the Home Care Service. This is because users in these modalities require more frequent monitoring, since they have clinical complexity and depend on technologies for health maintenance, such as stomas, tracheostomy, among others⁽⁴⁾.

It is worth noting that sometimes patients dependent on technology for health maintenance remain hospitalized longer than necessary due to unavailability of technological resources, fundamental to care at home, or due to difficulties of caregivers/family members in handling them⁽⁵⁾. Still, cases of readmission resulting from insufficient preparation/training of the caregiver are not rare, which reinforces the importance of the caregiver being adequately prepared before hospital discharge and followed-up in the first days after returning home⁽⁶⁾.

Thus, the process of preparation of caregivers/family members presents weaknesses that compromise the continuity of care after hospital discharge⁽⁷⁾. A study in the UK, for example, showed that training caregivers of children with tracheostomies requires planning and time for feasible implementation by the team, as it involves providing technical care informa-

tion and assessing the caregiver's competence in performing the skills⁽⁸⁾.

Moreover, although verbal orientations are usually used as teaching resources by professionals to caregivers/family members during dehospitalization, the vast amount of information to be absorbed before discharge often hinders the full understanding and, consequently, the safety in assuming the care⁽⁷⁾. The pre-hospital discharge orientations offered by the teams to caregivers of technology-dependent patients sometimes do not occur in a way that favors the acquisition of knowledge needed to structure the care actions at home.

Furthermore, the process of becoming a caregiver is often conflicting and brings abrupt changes in the family's daily life, which, added to the lack of support and quality in training, leads to insecurity and overload in the performance of care, besides leading to errors and possible readmissions^(7,9), especially in cases where caregivers do not feel sufficiently instrumentalized for the effective implementation of care. A study with caregivers of gastrostomy patients, for example, pointed out the frequent presence of errors in the care of the stoma and in the handling of the tube⁽¹⁰⁾.

The follow-up of caregivers in the performance and implementation of care at home, especially in the first days after hospital discharge, will allow them to clarify doubts and resolve insecurities, and professionals to validate the effectiveness of the training offered^(8,11).

In this context, at the same time that the need arises to investigate the process of preparing caregivers of patients with technological dependence for dehospitalization, the literature points out that identifying barriers and/or facilitators to this process allows the maintenance or adaptation of the strategies used in order to make them more applicable to the practice of care and the contexts of the different actors involved, that is, professionals and caregivers⁽¹²⁻¹³⁾. They provide, therefore, better assistance and results to the patients' demands.

Given the above, the following questions arise:

How is the preparation of caregivers for the dehospitalization of technology-dependent patients performed? What possible factors can influence it? To answer these questions, the aim of the study was defined as: to know how the preparation of caregivers of technology-dependent patients is conducted from the perspective of professionals of the Home Care Service.

Methods

This is an exploratory study of qualitative nature, linked to the matrix project "Home care for adults and elderly in the perception of health professionals, patients and caregivers". The guidelines of the Consolidated Criteria for Reporting Qualitative Research (COREQ) guided the construction of the study and the reporting of its results.

The study was developed in a Home Care Service linked to a general hospital with 399 beds, located in the state of Mato Grosso do Sul, Brazil. The informants were the professionals who work in this service, which has been in operation since July 2010 and consists of two Multiprofessional Home Care Teams and a Multiprofessional Support Team.

The invitation to participate in the study was made to the 15 professionals working in the service at the time of data collection, through telephone contact made available by the coordinator of the teams. For those who agreed to participate, according to their availability and interest, a day and time was scheduled for the interview, which took place at their workplace, but in a way that did not interfere with the service routine.

The inclusion criterion was a minimum of three months working in the Home Care team, which was met by all professionals. Two were excluded, one for unavailability to schedule an interview after three attempts, and the other for having left the service during the data collection period. It is noteworthy that three professionals refused to participate in the study, and another was on maternity leave, so that, by exhaustion, nine professionals were informants, their reports

being sufficient to reflect the multiple dimensions of the object under study based on the recurrence and complementarity of the information⁽¹⁴⁾.

Data was collected from October to November 2019, through semi-structured interviews, using a script addressing sociodemographic characteristics and the guiding question: Talk about the process of training of caregivers, performed by your team, for dehospitalization and execution of care at home. Some support questions, with emphasis on the dehospitalization operational aspects and on the caregiver's training and follow-up, were used when necessary, in order to help conducting the interviews and reaching the study's objective.

The interviews were audiorecorded after the participant's consent and had an average duration of 30 minutes. All were conducted by the first author, a nursing student, scientific initiation scholarship holder, who received 40 hours of practical training on the collection and analysis of qualitative data, in addition to having already participated in data collection with interviews in other studies of her research group, which had no relationship with the study participants.

All interviews were transcribed in their entirety, preferably on the same day of the interview, and submitted to Content Analysis, thematic mode, following the proposed steps: pre-analysis, material exploration, data treatment and inference of results⁽¹⁵⁾. In the pre-analysis, the interviews were read individually and floating, followed by the exploration of the material with a thorough and exhaustive reading of the printed content. Next, the messages were coded by means of central ideas that gave rise to the nuclei of meaning. Finally, after the grouping and classification of the units of meaning according to their similarities and anchoring to the research objective, the thematic categories emerged.

The study was approved by the Ethics Committee on Research with Human Beings of the Federal University of Mato Grosso do Sul, under Certificate of Ethics Appraisal Submission no. 02623818.4.0000.0021 and opinion no. 3,226,138/2019, in compliance with Re-

solution no. 466/2012 of the National Health Council. To ensure anonymity, the excerpts of the interviews were identified by the letter P referring to "Professional" followed by two Arabic numbers, the first referring to the order of inclusion in the study and the second, to the time of performance in the service. Ex: (P1, 72 months).

Results

Of the nine professionals participating in the study, eight were female (two nurses, two nursing technicians, one physician, one physical therapist, one occupational therapist, one speech therapist, and one social worker). They were between 33 and 50 years old, and had been working in the service between seven months and nine years. All had specialization, such as: Management in Urgency and Emergency; Palliative Care; Hospital Physiotherapy; Rheumatology; Upper Limb Orthotics; Distance Education; Family Health and Occupational Nursing.

From the interviews analysis, two categories emerged: Strategies and resources used in the caregivers' preparation for dehospitalization; and Factors that influence the caregivers' preparation for dehospitalization, which will be described as follows.

Strategies and resources used in the preparation of caregivers for dehospitalization

In this category, strategies and resources used by the professionals of the Home Care Service to prepare the caregivers/family members to perform care at home are highlighted. One of the strategies reported was the importance of including and valuing the caregiver in the process of joint construction of care: *We always include the family in the trainings, because it is easier to learn and adhere to what is being taught: is this how it is done, is there a way that you think is better to do it? How can we negotiate this? And they go on developing the techniques* (P1, 72 months).

Thus, they believe that holding monthly meetings intended for caregivers/family members of pa-

tients being monitored by the Home Care Service and open to caregivers of inpatients, favors the acquisition of knowledge, since they address various topics, and such meetings are a space for sharing experiences: *There are monthly meetings with the caregivers and we always look for a different theme to overcome the difficulties they may have...* (P6, 60 months). *...they pass the experience among themselves. Those with more difficulty talk to those who find it easier to accept care at home. We talk that one of the criteria to continue in the Home Care Service is to be present at these meetings, because they are important...* (P9, 44 months).

Another strategy highlighted is the more frequent follow-up soon after hospital discharge, which allows the gradual passing on of information, since they recognize that caregivers/family members have difficulties in assimilating a large amount of information at the same time and that the arrival of the patient at home triggers fear and insecurity in the performance of care: *The first week is crucial, they feel very insecure, and the team during this period makes almost daily visits to follow up if this family is coping or not, to clear all doubts...* (P7, 24 months). *They start with a lot of fear, but we accompany them, being very present, and as time goes by they improve...* (P3, 11 months). *The nurses go to the home, show how to do it, the equipment and instruments that will be used, everything. They show them visually, sometimes they do it more than once or they have to do it the whole week so they can get trained...* (P6, 60 months).

The reports also show that the use of verbal orientations associated with practical demonstrations and the availability/offering of illustrative forms are resources that enhance the caregivers'/family members' preparation: *The orientation today is very verbal, mainly from the nursing staff about hygiene care. We have orientations about the devices. In the Sector, there is information about tracheostomy, gastrostomy. There are also lectures about these subjects, so all the time we talk about this care...* (P5, 88 months). *...by didactic means, from the physical therapy part, I take exercises with pictures. Patients who need nasotracheal aspiration, there are pictures of how aspiration is performed. We show how to do it and most of them do what we teach* (P3, 11 months).

However, they emphasized the importance of using understandable language during this process,

either by providing verbal or illustrative information: *The language is the first thing we adapt for the caregiver to understand. It's no use coming up with technical terms because they won't understand, you have to adapt according to the situation...* (P5, 88 months).

Regardless of the strategy and resource adopted, they emphasized the need to observe the care provided to the caregivers/family members in order to validate the knowledge acquired: *...It is more making them do in front of us what was oriented to see if they really have no difficulty* (P6, 60 months). *The whole team is oriented to observe how the caregiver does it; the indirect signs that it is not being done correctly. If the patient is secretive, why is he secretive? If the dressing is not properly done, does he not know how to do it or is he not doing it the way he was instructed? Is the problem non adherence or non training?* (P4, 108 months).

The reports presented show the importance of the use of soft technologies, based on the interaction and valorization of learning, in the preparation of caregivers/family members for dehospitalization.

Factors that influence the caregivers' preparation for dehospitalization

In this category, it was possible to identify that the preparation for dehospitalization, performed by the professionals of the Home Care Service, involves aspects that directly influence the transfer of information to the caregiver and are present from the intra-hospital context to the arrival of the individual and caregiver/family at home.

The professionals emphasized that, despite the difficulties regarding logistics, the possibility of using simulators/technology during the trainings constitutes a facilitator in the caregiver preparation process: *For example, if we had Zé here [doll with colostomy] it would be easier. In Zé you can explain; because sometimes, the caregiver's fear is how to take out the colostomy, how to wash it* (P8, 7 months). *I think we should start the training with the simulators; the institution has them. To do an organized training would make this practice much easier. But that requires logistics, because we would have to set up a simulation center for that caregiver* (P1, 72 months).

Among the barriers observed in the implementation of the caregivers' preparation/training, the professionals highlighted the routine of the different sectors in the hospital environment and the difficulty in organizing the time for the training: *The training occurs here in the hospital, at the bedside. The problem is that sometimes I arrive on the floor and it's bath time, the dressing has already been applied, then how can I teach the family member?* (P5, 88 months). *For example, I go to the medical clinic to do the dressing training with the family, and when I get there the patient has already changed the dressing. It is very difficult because the floor care sometimes can't talk to our home care team* (P1, 72 months). *Sometimes the doctor asks today and tomorrow he is already sending him away, so the time is short. The patients that are respiratory, the physical therapist trains twice at most, and sometimes the person is in doubt about the whole procedure, because they are not used to it* (P2, 60 months). *If the patient is expected to be discharged tomorrow, I will train the caregiver today; but I have the impression that most of the time they are very insecure, it would be better if they trained for more time in the hospital. What I think is that there is no right way, it has to be one, two, three days before. If we train a lot before, there is a risk of the patient having an instability, getting worse, and not going home; if we train at the last minute, the family will be insecure* (P5, 88 months).

Also mentioned were difficulties related to the fact that the preparation/training is done on the ward, in front of other people and, above all, the patient himself: *The training being on the patient, the caregiver is more afraid. It would be interesting if the first training did not take place on the patient, because there is a family tie, it should not be easy for the caregivers...* (P4, 108 months). *We train in bed and the place is inadequate; first because it is in the patient, so it is an ethical infraction, the family also feels intimidated because it is the first time they are going to put a probe in, and there are other caregivers present, because normally there is not one patient per ward. So the environment is stressful to perform this training* (P1, 72 months).

The lack of instruments to evaluate the effectiveness of the strategies used in the training of caregivers, in order to allow the identification of weaknesses and needs to be addressed was another aspect pointed out: *There is nothing concrete that makes us know if the caregiver is fit or not for care, it's just our perception* (P5, 88 months). *It is an evaluation based on the understanding of the profes-*

nal who is doing the training. There is no instrument, checklist, how many times they were trained, reoriented... the professional said ok, he is trained (P4, 108 months).

Furthermore, they highlighted that the cultural habits of the families influence the adherence to the orientations provided: *We have some difficulty with this part of hygiene, of adhering to the orientations. I made an adaptation for the children with cerebral palsy to be well positioned. They arrive at home and the adaptation is on the floor or hanging on the roof, but it is something that we know is theirs. So normally we try to orient even about this, the team is always intervening, but there is a part that we know is cultural (P6, 60 months).*

However, they indicated the gap in their own professional training to relate to the family as influential in the adherence to care: *The difficulty I see is that the family doesn't adhere to the care, but I see that it is more due to the professional's failure in dealing with the family, failure in our training to deal with the family (P1, 72 months).*

Finally, they pointed out that the hospital-centric culture negatively influences the recognition of the importance of Home Care, both by the family and by the professionals: *The difficulty is the hospitalist culture, we still have a very hospital oriented health care, the family was excluded from patient care. The greatest difficulty is to change this paradigm, that the highly complex patient can be cared for by the family at home and that the health professional is not the absolute holder of knowledge... (P1, 72 months).*

It is observed in the reports the predominance of factors related to intra-hospital management, especially an organizational culture that interferes with the effective preparation/training of caregivers and, consequently, hinders the dehospitalization process.

Discussion

Strategies and resources used in the preparation/training of caregivers for dehospitalization were highlighted, as well as the factors that influence this process, both in the hospital environment and at home, and that ultimately impact the care actions performed.

The fact of including and valuing the caregiv-

er/family in the process of joint construction of care constitutes an important strategy for their learning. This context is favored by the bond established during hospitalization and by the inclusion in the discussions, planning, conduction, and evaluation of the care actions performed⁽¹⁶⁾.

It is emphasized that the relationship with the caregiver/family member, when well established, leads to satisfactory health results at home, due to the greater possibility of inserting the caregiver/family member in problem solving and sharing responsibility for care^(12,17), constituting an important tool in the process of transition of care from the hospital to the home.

Another strategy mentioned by the professionals of the Home Care Service to prepare the caregiver for dehospitalization is the monthly meetings, because it is believed that they allow the caregivers to solve doubts and exchange experiences. This result corroborates the findings of a study with elderly caregivers, which highlighted that the sharing of caregiving experiences favors its safety and the relief of feelings of overburden⁽⁹⁾. Thus, the importance of health services developing educational and supportive measures for patients and caregivers to enable the development of cognitive coping strategies to make sense of the situation and establish a "new normal" is highlighted⁽¹⁸⁾.

Another strategy reported by the professionals was the gradual provision of information, especially soon after discharge to the home, since the first week is commonly marked by doubts and insecurity in the execution of care⁽⁶⁾. It is emphasized that doubts form the basis of the emotional distress experienced by caregivers and are intensified by the lack of guidance and professional support/follow-up⁽⁹⁾. Thus, the importance of the home visit to identify the factors that contribute to or hinder the recovery process stands out⁽¹⁹⁾.

The use of different teaching tools⁽¹⁹⁾, as verbal orientations and illustrative folders, are considered important resources for the preparation/training of caregivers by the professionals, especially as a me-

thod to fix the learning. It is noteworthy that, although verbal orientations have been reported as an effective resource in some studies⁽⁷⁻⁸⁾, the benefits of online tools have also been highlighted for enabling access to learning at any time, in addition to the possibility of later review of knowledge⁽⁸⁾.

The concern with the language used was also pointed out as an important strategy in the preparation/training of caregivers. The language constitutes a primordial factor in the process of effective communication between professional, caregiver, and patient, for, when clear and well-established, it favors the quality of the care provided⁽²⁰⁾. Thus, it is necessary that Home Care professionals develop interactional skills and value the different demands presented by caregivers in order to ensure quality in the transfer of information relevant to care.

Furthermore, regardless of the strategies and resources used, it is necessary that the professionals are able to observe the care performed by the caregiver/family member in the home context in order to validate the skills developed and detect particular needs. Thus, it is not enough for the caregiver to answer that he/she is not facing difficulties, because, many times, patients and/or caregivers, when questioned, especially regarding health behaviors, can answer that they have already perceived what the professionals want to hear⁽²¹⁻²³⁾. A study conducted with caregivers of oral cancer patients pointed out that in the daily practice of performing the actions the caregivers showed insecurity, sometimes influenced by the necessary adaptations to the home environment⁽²⁴⁾.

As potentialities for the preparation/training of caregivers, the professionals highlighted the use of simulators/technologies, as they can favor critical thinking, the reduction of anxiety regarding care, and cognitive and emotional development⁽²⁵⁾. In this sense, a study conducted with caregivers of children with complex conditions pointed out that the simulator gives caregivers the opportunity to solve emerging situations, since, during hospitalization, they have no opportunity to develop skills due to the rapid inter-

vention of the institution's professionals⁽²⁶⁾.

Despite the presence of these simulators in the institution, the difficulty in the logistics of realistic clinical scenarios was pointed out as a challenge. Thus, it reinforces the need for organization in the infrastructure by the managing bodies, since this type of education produces benefits for both the caregiver and the institution, as it can reduce the number of readmissions⁽²⁶⁾.

As for the factors that negatively interfere in the caregiver's preparation/training, the difference in the routine of the sectors was pointed out in the intra-hospital scope, which reiterates the importance of the continuous flow of communication between the professionals of the Home Care Service with the different sectors, in order for the training process to be efficient. In this sense, an international study pointed out the importance of policies to support communication and standardized routines for the different sectors, in order to organize patient care and enable an appropriate dialogue between the teams⁽²⁷⁾.

Moreover, the insufficient time for training constitutes another barrier, since it hinders the organization of the meetings and the quality of the interactions with implications in the learning process⁽²⁶⁾. As a consequence, the family may leave the hospital environment with weaknesses for the continuity of care and, thus, readmissions may occur that could be avoided with the implementation of a support program for the transition of care from hospital to home, including discharge planning by the health team as an important step to be considered.

The demonstration of the techniques on the patient himself was also highlighted as a barrier in the process of teaching the caregiver, due to the feelings involved. A study with patients using noninvasive ventilation conducted in France identified a tendency for caregivers to avoid entering the room during the training session. This is because, due to their own health condition, during the training, the patients presented breathing difficulties and feared that their relatives would be distressed by the situation⁽²⁸⁾.

The absence of an instrument to evaluate the training offered was also pointed out as an important barrier in the instrumentalization of caregivers/family members for the continuity of care. Thus, monitoring the effects of training on the acquisition of knowledge and its application in practice is essential for the quality of care, besides favoring the direction and planning of new activities. This was confirmed in a research that found that the application of an instrument 15 days after the theoretical-practical training allowed a formal evaluation of the caregiver's learning process, and those who did not present sufficient results were submitted to a new training in order to provide the family with more safety in their actions⁽¹¹⁾.

The influence of cultural habits on adherence and quality of care provided at home was another aspect identified as interfering in the process of preparation/training of caregivers. This finding highlights the importance of teaching strategies to be adapted to the cultural context of each individual, using soft technologies of care, in order to value the principle of equity and promote the quality of practice at home⁽¹⁷⁾.

However, it is important to consider that sometimes the caregiver's difficulty in adhering to the guidelines offered can be influenced by the professional's difficulty in dealing with the caregiver/family, which can be a reflection of a care model still focused on technicism and hard technologies, centered on equipment and procedures⁽¹⁷⁾. In this sense, the negative influence of the hospital-centric model, still rooted in the perspective of families and health professionals, was also pointed out as interfering in the consolidation of Home Care.

It is worth noting that the dynamics of the home environment requires that universities adapt their curricula, with the insertion of themes that centralize users and families in the organization of care⁽⁷⁾, in order to qualify future professionals, especially nurses, to work in the modality of Home Care. The nurse's primary role in the transition from hospital care to home care is emphasized, since he/she is the professional responsible for the management of several activities in this context⁽¹⁹⁾.

Moreover, in Home Care, some activities require from the professional not only technical skills, but especially the relational ones, in order to promote the bond with the families; as well as the adequate use of educational, assistance and administrative resources appropriate to this context⁽¹⁹⁾. The quality of the link between professionals and caregivers can guide and enhance the use of some teaching strategies, since it facilitates the articulation between the actors in the dialogue, as well as the interaction between them, which is essential for the joint planning of care⁽¹²⁾.

Study limitations

Possible limitations of the study refer to the reduced number of participants, all belonging to the Home Care Service of a single institution whose organizational form is specific. And also, for the fact of contemplating only the perspective of health professionals, since the inclusion of home caregivers as participants of the study would expand the understanding of how the factors that interfere in the preparation of caregivers of technology-dependent patients occur. Thus, it is recommended that similar studies be carried out in other settings and contexts in order to verify the influence of regional aspects and the organization of the work process in the preparation/training of caregivers.

Contributions to practice

The findings obtained in this study can collaborate to the development of the practices of multi-professional teams working in the home setting, since they point out aspects that facilitate and hinder the preparation/training of caregivers. The fact of including and valuing the caregiver in the process of joint construction of care is an important finding and should be recorded by the professionals, so that there is the recognition that the relational meanings are essential tools among the competencies to act in the home environment.

It is noteworthy that many of the barriers in

the process of preparation/training of caregivers involve organizational management regarding the systematization of an effective flow of transition of care to the home, which reinforces the importance of the commitment not only of the teams of the Home Care Service, but also of all those involved in patient care from the time of admission to the health institution.

Conclusion

The preparation of caregivers/family members for the dehospitalization of technology-dependent patients is permeated by the concern to facilitate the acquisition of knowledge and skills for home care, involves the use of resources and specific strategies, and is influenced positively by technologies and negatively by factors related to hospital structure and organization.

Acknowledgements

This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – Brazil (CAPES) – Finance Code 001, the National Council for Scientific and Technological Development, process no. 146264/2019-3, and Federal University of Mato Grosso do Sul.

Authors' contribution

Conception of the project, analysis and interpretation of the data: Sato DM, Teston EF.

Writing of the article or relevant critical review of the intellectual content: Sato DM, Teston EF, Andrade GKS, Marcon SS, Giacon-Arruda BCC, Silva JL, Galera SAF.

Final approval of the version to be published: Sato DM, Teston EF, Andrade GKS, Marcon SS, Giacon-Arruda BCC, Silva JL, Galera SAF.

Agreement to be responsible for all aspects of the manuscript related to the accuracy or completeness of any part of the work to be properly investigated and resolved: Sato DM, Teston EF, Andrade GKS, Marcon SS, Giacon-Arruda BCC, Silva JL, Galera SAF.

References

1. Oliveira SG, Kruse MHL. Better off at home: safety device. *Texto Contexto Enferm.* 2017;26(1):e266-0015. doi: <https://dx.doi.org/10.1590/0104-07072017002660015>
2. Stefanicka-Wojtas D, Kurpas D. eHealth and mHealth in chronic diseases – identification of barriers, existing solutions, and promoters based on a survey of EU Stakeholders Involved in Regions4PerMed (H2020). *J Pers Med.* 2022;12(3):467. doi: <https://doi.org/10.3390/jpm12030467>
3. Rajão FL, Martins M. Home Care in Brazil: an exploratory study on the construction process and service use in the Brazilian Health System. *Ciênc Saúde Coletiva.* 2020;25(5):1863-77. doi: <https://doi.org/10.1590/1413-81232020255.34692019>
4. Ministério da Saúde (BR). Portaria MS/GM n. 825, de 25 de abril de 2016. Redefine a Atenção Domiciliar no âmbito do Sistema Único de Saúde (SUS) e atualiza as equipes habilitadas [Internet]. 2016 [cited Feb 24, 2022]. Available from: https://bvsms.saude.gov.br/bvs/saudelegis/gm/2016/prt0825_25_04_2016.html
5. Alencar AMC, Losso E, Carvalhal TT, Martello SK. Evaluation of the use of Technologies in children and teenagers home care in the city of Curitiba. *R Saúde Públ Paraná* [Internet]. 2018 [cited Mar 27, 2022];1(1):11-9. Available from: <http://revista.escoladesaude.pr.gov.br/index.php/rspp/article/view/42>
6. Fisher MMJB, Marcon SS, Barreto MS, Batista VC, Marquete VF, Souza RR, et al. Caring for a family member with stroke sequelae: the first days at home after hospital discharge. *Rev Min Enferm.* 2021;25:e-1385. doi: <http://www.dx.doi.org/10.5935/1415.2762.20210033>
7. Silva KL, Sena RR, Castro WS. Dehospitalisation at a general hospital in Minas Gerais: challenges and prospects. *Rev Gaúcha Enferm.* 2017;38(4):e67762. doi: <https://dx.doi.org/10.1590/1983-1447.2017.04.67762>
8. Antoniou L, Wray J, Kenny M, Hewitt R, Hall A, Cooke J. Hospital training and preparedness of parents and carers in paediatric tracheostomy care: a mixed methods study. *Int J Pediatr Otorhinolaryngol.* 2022;154:111058. doi: <https://doi.org/10.1016/j.ijporl.2022.111058>

9. Couto A, Caldas C, Castro E. Home care for dependent elderly patients by caregivers with overload and stress. *J Res Fundam Care Online*. 2019;11(4):944-50. doi: <https://dx.doi.org/10.9789/2175-5361.2019.v11i4.944-950>
10. Sezer RE, Ozdemir Koken Z, Senol Celik S. Home percutaneous endoscopic gastrostomy feeding: difficulties and needs of caregivers, qualitative study. *J Parenter Enteral Nutr*. 2020;44(3):525-33. doi: <https://doi.org/10.1002/jpen.1612>
11. Witkowski MC, Silveira RS, Durant DM, Carvalho AC, Nunes DLA, Anton MC, et al. Training of children's and adolescents' family members in home parenteral nutrition care. *Rev Paul Pediatr*. 2019;37(3):305-11. doi: <https://dx.doi.org/10.1590/1984-0462/2019;37;3;00002>
12. Glomsas HS, Knutsen IR, Fossum M, Christiansen K, Halvorsen K. Family caregivers' involvement in caring for frail older family members using welfare technology: a qualitative study of home care in transition. *BMC Geriatric*. 2022;22(1):223. doi: <https://doi.org/10.1186/s12877-022-02890-2>
13. Burgdorf JG, Wolff JL, Chase J, Arbaje AI. Barriers and facilitators to family caregivers training during home health care: a multisite qualitative analysis. *J Am Geriatr Soc*. 2022;70(5):1325-35. doi: <https://doi.org/10.1111/jgs.17762>
14. Minayo MCS. Amostragem e saturação em pesquisa qualitativa: consensos e controvérsias. *Rev Pesqui Qual [Internet]*. 2017 [cited Feb 18, 2022];5(7):1-12. Available from: <https://editora.sepq.org.br/rpq/article/view/82>
15. Bardin L. *Análise de conteúdo*. São Paulo: Edições 70; 2016.
16. Vaartio-Rajalin H, Fagerstrom L. Professional care at home: Patient-centredness interprofessionalism and effectivity? A scoping review. *Heal Soc Care Community*. 2019;27:e270-e288. doi: <https://doi.org/10.1111/hsc.12731>
17. Gong E, Sun L, Long Q, Xu H, Gu W, Bettger JP, et al. the implementation of a primary care-based integrated mobile health intervention for stroke management in rural China: mixed-methods process evaluation. *Front Public Health*. 2021;9:774907. doi: <https://dx.doi.org/10.3389/fpubh.2021.774907>
18. Zanini C, Fiordelli M, Amann J, Brach M, Gemperli A, Rubinelli S. Coping strategies of family caregivers in spinal cord injury: a qualitative study. *Disabil Rehabil*. 2022;44(2):243-52. doi: <https://doi.org/10.1080/09638288.2020.1764638>
19. Keilty K, Chu S, Bahlibi A, McKay S, Wong M. Case study: achieving "hands-on" practice for remote family caregivers and homecare nurses of children with medical complexity. *Nurs Leadersh (Tor Ont)*. 2022;35(1):10-23. doi: <https://dx.doi.org/10.12927/cjnl.2022.26754>
20. Turchi GP, Riva MSD, Orrù L, Pinto E. How to intervene in the health management of the oncological patient and of their caregiver? A narrative review in the psycho-oncology field. *Behav Sci (Basel)*. 2021;11(7):99. doi: <https://dx.doi.org/10.3390/bs11070099>
21. Arruda GO, Leal LB, Peruzzo HE, Nass EMA, Reis P, Marcon SS. Family perceptions about care for men with chronic conditions. *Ciênc Cuid Saúde*. 2018;17(1). doi: <https://doi.org/10.4025/cienc-cuidsaude.v17i1.43845>
22. Silva ANS, Serafim ARMR, Alcântara CM, Queiroz MVO. Experiences of adolescents with type-1 diabetes and multiprofessional education interventions for care. *Ciênc Cuid Saúde [Internet]*. 2018 [cited Apr. 13, 2022];17(2). Available from: <https://periodicos.uem.br/ojs/index.php/Cienc-CuidSaude/article/view/40434/751375138141>
23. Nass EM, Marcon SS, Teston EF, Reis P, Peruzzo HE, Monteschio LV, et al. Perspective of young people with diabetes on educational intervention on Facebook®. *Acta Paul Enferm*. 2019;32(4):390-7. doi: <http://doi.org/10.1590/1982-0194201900054>
24. Liang S, Chang T, Wu W, Wang T. Caring for patients with oral cancer in Taiwan: The challenges faced by family caregivers. *Eur J Cancer Care (Engl)*. 2019;28(1):e12891. doi: <https://dx.doi.org/10.1111/ecc.12891>
25. Presado MHCV, Colaço S, Rafael H, Baixinho CL, Félix I, Saraiva C, et al. Learning with high fidelity simulation. *Ciênc Saúde Coletiva*. 2018;23(1):51-9. doi: <https://dx.doi.org/10.1590/1413-81232018231.23072017>
26. Thrasher J, Baker J, Ventre KM, Martin SE, Dawson J, Cox R, et al. Hospital to home: a quality improve-

- ment initiative to implement high-fidelity simulation training for caregivers of children requiring long-term mechanical ventilation. *J Pediatr Nurs.* 2018;38:114-21. doi: <https://doi.org/10.1016/j.pedn.2017.08.028>
27. Jenisch CL, Jungbauer RM, Zuckerman KE, Wagner DV, Ramsey KL, Austin JP, et al. Below the surface: caregivers' experience of hospital-to-home transitions. *Hosp Pediatr.* 2022;12(2):e54-e60. doi: <http://dx.doi.org/10.1542/hpeds.2021-006248>
28. Iosifyan M, Schmidt M, Hurbault A, Mayaux J, Delafosse C, Mishenko M, et al. "I had the feeling that I was trapped": a bedside qualitative study of cognitive and affective attitudes toward noninvasive ventilation in patients with acute respiratory failure. *Ann Intensive Care.* 2019;9(1):134. doi: <https://doi.org/10.1186/s13613-019-0608-6>



This is an Open Access article distributed under the terms of the Creative Commons