Abstract

**Background:** When practicing care, the nurse is able to apply all technological possibilities in favor of the demands of the necessities of both patients and their relatives.

**Objective:** To reveal the kinds of light technologies that have been developed by nurses to the families of patients who take care of them.

**Method:** Integrative literature review conducted by the search in the databases LILACS, MEDLINE, BDENF and Scopus, with the keywords “technology”, “nursing”, “care” and “family”, published between 2005 and 2016 with a final selection of 16 items.

**Results:** The categories developed by similar subject for analysis were: light technologies focused on family care; group technology as a strategy of care for families and educational technologies in nursing care context.

**Conclusion:** The nurse takes control of soft Technologies based on the development of care for Family members. But there are gaps to consolidate this assistance having the necessity of implementing public policies to ensure, in fact, these necessities.

**Keywords**
Technology; Caution; Nursing; Family.

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Introduction
Currently, health care is experiencing a unique moment in relation to technological advances. In this way, early diagnosis and treatment of diseases are guaranteed allowing a longer survival time even in patients with chronic and incurable diseases.

The word technology has the etymological definition “techno” that comes from techné, that is the know-how, and “ology” that comes from logos reason, which means the reason of knowing how to do [1]. In the field of health, technology and care are well-connected and in this perspective can not be associated only with the design of products, machinery and equipment of last generation, since it also includes knowledge constituted for the generation and use of products, as well as for the organization Of human relationship [2].

So, health Technologies are all techniques procedures and knowledges used in the professional practice in order to offer a better assistance to the human being in favor of his physical and mental health [3]

There are several ways of characterizing health technologies, but according to the theoretical axis of this study, they can be classified as: harsh, which are machines, norms and organizational structures; Lightweight, that includes the knowledge structured in the health process, such as the medical clinic; And the light Technologies or the relations that presuppose the production of bond, reception, autonomization and communication [4].

Nursing considers care as the essence of its work and, therefore, uses all technological options in order to meet the needs of both patient and his/her relatives [5]. This approach between care and technology means that nursing care results in a work that is alive as well as, systematized and organized scientifically. Then it favors the maintenance of life, provides comfort and well-being to those who need care [6].

Among its most strategic actions are the intervention procedures operating as technologies of relationships, meetings, and subjectivities, in addition to technological knowledges structured in favor of the humanization of care and quality of care [7].

In relation to family caregivers, they are always constantly a series of needs, difficulties and constraints that emerge from this new role. According to this perspective demands for care may appear and will require the assistance of the health professional.

Nurses use light technologies as a prerequisite for the reciprocity and interaction relationship in order to ensure the effectiveness of care. When producing these relationships with the family, the nurse can rescue the uniqueness, the autonomy and the citizenship [8].

Light technology is the model of care that is structured in a flexible way and can be adapted according to the need, of both the nurse and the family with the objective of promoting a unique, specific and at the same time with the vision of the whole [6,8].

This study is justified by the need to identify family care strategies. From its recognition it’s possible to plan public policies in order to ensure that health professionals take care of those who care in the pursuit of health promotion. Then, the objective is to highlight the types of light technologies that are being developed by nurses in the care of patients’ relatives in the healthcare setting.

Methods
The integrative review is the most comprehensive methodological approach to revisions, allowing the inclusion of experimental and non-experimental studies for a complete understanding of the phenomenon analyzed [9]. In this study, six steps of the integrative review are followed. They are: to establish the question of the revision; to select the sample to be reviewed; to categorize and to evaluate the studies; to interpret the results and to present the revision or synthesis of knowledge [10].
The guiding question of the study was: "How are light technologies being applied to family caregivers of patients in the context of health?"

The bibliographic survey was carried out from the databases of the Virtual Health Library (VHL): Latin American and Caribbean Literature in Health Sciences (LILACS), Medical Literature Analysis and Retrieve System Online (MEDLINE), Nursing Databases (BDENF) and through the Capes portal by SciVerse Scopus (SCOPUS). The descriptors used in the search strategy were extracted from the Bank of Descriptors in Health Sciences (DeCS) and Medical Subject Headings (MeSH) using Boolean operators: "technology" and "care" and "nursing" and "family" in Portuguese And "technology" and "caution" and "nursing" and "family" in "English".

The criteria used to select the sample were: scientific articles obtained in full, published in a period of ten years (2006 to 2016) in English, Spanish and Portuguese. This period was delimited in order to obtain a broader survey on the subject. The exclusion criteria were: repetitive articles, dissertation, review articles or those that did not fit the theme. The data were collected in August 2016. The articles were thoroughly read and analyzed in full by 2 professional nurses researchers independently. The data were extracted reliably and organized into a separate worksheet prepared by the researchers according to year of publication, title, type of study, sample, objectives, results and conclusions.

**Results**

A total of 164 articles were found available on line in the Virtual Health Library distributed in the following databases: MEDLINE (34 subjects), LILACS (49 subjects), BDENF (48 subjects) and through the Capes portal in the SCOPUS database (33 Subjects). After the articles were screened, the titles and their summaries were read, in order to check the pertinence of the study with the guiding question raised for investigation. At the end of the search, 16 articles were selected for analysis. The search strategy is shown in Figure 1.
When analyzing the selected articles, it was observed that 1 study (6.25%) was carried out in Colombia, 2 in Portugal (12.5%), 1 in the United States (6.25%) and the remaining 12 (75%) in Brazil. The publications occurred in 2016 (18.76%), 2015 (18.76%), 2013 (6.25%), 2012 (18.76%), 2011 (6.25%), 2010 (50%) and 2008 (18.76%), with absolute predominance of studies in nursing journals (100%). The data in Table 1 present the selected articles, according to their authors, type of study, periodical, country, year, light technologies mentioned in the study and main findings.

Table 1. Description of articles reviewed.

<table>
<thead>
<tr>
<th>First Author</th>
<th>Type of study</th>
<th>Periodical</th>
<th>Country</th>
<th>Year</th>
<th>Results</th>
<th>Main Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Squassante ND [13]</td>
<td>Descriptive, Exploratory, Qualitative</td>
<td>Rev Bras Enferm</td>
<td>Brazil</td>
<td>2008</td>
<td>- Embracement - Dialogue</td>
<td>At the moment patients are hospitalized, family members have doubts. So, the application of light technologies by the nurse is fundamental to the viabilization of the relationship between then.</td>
</tr>
<tr>
<td>Sanabria MLV [14]</td>
<td>Descriptive, Qualitative</td>
<td>Invest. educ. enferm</td>
<td>Colômbia</td>
<td>2016</td>
<td>- Communication - Active listening - Interpersonal relationship</td>
<td>Family members need clear information about hard technologies. The group of nurses must be willing to listen to them.</td>
</tr>
<tr>
<td>Backers [15]</td>
<td>Descriptive, Qualitative</td>
<td>Avances en enfermeira</td>
<td>Brazil</td>
<td>2015</td>
<td>- Dialogue - Bond - Interpersonal relationship</td>
<td>Despite the extreme vulnerability of many families, the promotion of dialogue is necessary to establish knowledge and to turn the subject/family into the protagonists of their history.</td>
</tr>
<tr>
<td>Santos FPA [16]</td>
<td>Descriptive, Qualitative</td>
<td>Rev esc enferm. USP</td>
<td>Brazil</td>
<td>2013</td>
<td>- Bond - Dialogue - Embracement</td>
<td>Health professionals use light technologies in search of integrity and reconstruction of care production.</td>
</tr>
<tr>
<td>Martins [17]</td>
<td>Descriptive, Exploratory, Qualitative</td>
<td>Rev eletrônica enferm</td>
<td>Brazil</td>
<td>2008</td>
<td>-Embracement - Interpersonal relationship</td>
<td>The reception and interpersonal relationship is understood by the health professional as promoting proximity, taking care of the other as oneself and being receptive; But the need for professional training is evidenced.</td>
</tr>
<tr>
<td>Dantas CN [18]</td>
<td>Reflexive</td>
<td>Texto contexto-enferm</td>
<td>Brazil</td>
<td>2016</td>
<td>- Nursing consultation</td>
<td>Nursing consultation is seen as an essential element for improving the quality of care, making it more humanized and focused on the person, the family and the community.</td>
</tr>
<tr>
<td>Esteves JS [19]</td>
<td>Descriptive, Qualitative</td>
<td>Invest educ enferm</td>
<td>Brazil</td>
<td>2015</td>
<td>- Communication - Dialogue</td>
<td>Communication dialogue are essential to support doubts related to the promotion of care for their families and nurses are essential in the application of this care technology.</td>
</tr>
<tr>
<td>Santos [22]</td>
<td>Descriptive, Exploratory, Qualitative</td>
<td>Rev eletrônica enferm</td>
<td>Brazil</td>
<td>2012</td>
<td>- Support Group</td>
<td>The support group can be used by nurses as a strategy to host families of newborns.</td>
</tr>
</tbody>
</table>
Discussion

Based on the materials analyzed, it was possible to point out important facts to be reported about the light technologies applied by nursing in favor of promoting care to the Family and contributing to the construction of nursing knowledge. The data were put together according to the identification of their similarities and differences. Then three thematic categories were presented: Light technologies centered in the family care; Group technology as a care strategy for families, and educational technologies in the context of nursing care.

Light technology focused on family care

Throughout history, nursing is the health profession that faces a great contact with the family. In the scientific literature, many subjects have been written relating the nursing team to the family, but few significant changes in nurses' practice of care are evident [11].

The family, in the health services, should be considered as a unit of care. Many demands can be attributed to them regarding the need for care of their sick people. In view of this, nursing should be committed to consider them as an integral part of the practice of their care.

<table>
<thead>
<tr>
<th>First Author</th>
<th>Type of study</th>
<th>Periodical</th>
<th>Country</th>
<th>Year</th>
<th>Results</th>
<th>Main Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alvarez SO [26]</td>
<td>Descriptive, Qualitative</td>
<td>Rev Gaúcha Enfer</td>
<td>Brazil</td>
<td>2012</td>
<td>- Support Group</td>
<td>The perception of family members allowed to identify that the group allows the dialogue, listening, support, interpersonal relationship with interventions of care by the nurse.</td>
</tr>
<tr>
<td>Landeiro MJL [28]</td>
<td>Descriptive, Exploratory, Qualitative</td>
<td>Texto contexto-enfer</td>
<td>Portugal</td>
<td>2016</td>
<td>- Communication - Dialogue</td>
<td>The knowledge of the family's necessities through communication and dialogue allows the construction of educational technologies to meet their demands.</td>
</tr>
<tr>
<td>Landeiro MJL [28]</td>
<td>Descriptive, Exploratory, Qualitative</td>
<td>Revista de Enfer da UFSM</td>
<td>Portugal</td>
<td>2015</td>
<td>- Interpersonal relationship - Support - Active listening</td>
<td>The applicability of informational technologies to family members facilitates self-care and patient care training.</td>
</tr>
<tr>
<td>Barros EJL [30]</td>
<td>Descriptive, Qualitative</td>
<td>Rev Gaúcha Enfer</td>
<td>Brasil</td>
<td>2012</td>
<td>- Booklet</td>
<td>The booklet was presented as an instrument of health promotion and at the same time as a co-participant of the educational health process both for patient and family</td>
</tr>
<tr>
<td>Teixeira E [31]</td>
<td>Descriptive, Qualitative</td>
<td>Rev Bras Enfer</td>
<td>Brazil</td>
<td>2011</td>
<td>- Active listening - Educational booklet</td>
<td>Sensitive listening and the elaboration of an educational manual contribute to the care of the family member with their children and with themselves in the improvement of health.</td>
</tr>
<tr>
<td>Hammerschmidt KSA [32]</td>
<td>Descriptive, Qualitative</td>
<td>Texto contexto-enfer</td>
<td>Brazil</td>
<td>2010</td>
<td>- Empowerment - Embracement-Bond - Active listening</td>
<td>Empowerment is seen as an innovative educational technology and an interaction between professionals and families. It welcomes, access to information and knowledge, respect, bond, identity and responsibility.</td>
</tr>
<tr>
<td>Smith C [33]</td>
<td>Descriptive, Qualitative</td>
<td>American Journal of Nursing</td>
<td>Estados Unidos</td>
<td>2008</td>
<td>- Educational device (Tele-assistance, email, internet)</td>
<td>It contributes to distant care by providing listening, communication and dialogue.</td>
</tr>
</tbody>
</table>

Source: Research data
Therefore, in relation to nursing care and family stands out the light technology, that is, technologies of relations, access, bonding, reception, communication and autonomization. Through the interpersonal relationship, the nurse becomes able to diagnose problems, define objectives, plan actions and identify particular needs by contemplating a care model that meets humanized care [12].

In a study developed with relatives who were in a hospital setting, dissatisfaction with the nursing team was detected, reporting the lack of space for dialogue and listening sensitivity to meet their needs and consequently their demands and necessities [13].

Another study justifies that the lack of communication is due to the fact that the hierarchical and authoritarian position assumed by the professional does not allow space for dialogue, active listening, bonding and welcoming [14].

Bonding and welcoming are important nursing care strategies in order to guarantee universal and equal access, problems solution and humanized care. This understanding affirms that the nurse, by means of affective and effective interaction with the family member, changes the mechanistic model into the dialogical, creative and transformative care, furnishing knowledge that transform users into the protagonists of their own history [15].

In order to build new ways of producing care, nurses must share their experiences, knowledge, expectations and feelings with their relatives, aiming at valuing the singularity and autonomy [16].

In another study, from the perspective of the health professional, it is pointed out the valorization of the host family as a technology of care. But there are difficulties in caring for the family due to the fear of emotional involvement and the unpreparedness of dealing with crisis situations in the family [17].

It should be noted that the implementation of care that is involved with integrality is possible only through changes in the organization and delivery of health services. In this perspective, it is necessary to prepare the nurse in a way that he is able not only to perform work techniques, but he’s capable of criticizing his practice, his skills and knowledge that reflect on his own work in health, with autonomy and capacity to solve problems. Above all these aspects he must be committed to the ethics and transformation of his reality [18].

After all that has been pointed out, the success of the survey and attendance of the health necessities of the nurses to the patients’ relatives depends on this interactive and dialogical process. In this way, it is necessary to strengthen relationships with the family in the perspective of increasing the otherness. This means to include an expanded vision of health committed to Health Unic System(SUS) principles for the development of care practices permeated through humanistic values, solidarity and citizenship [19].

**Group technology as a family care strategy**

The group approach presents itself as an assistance methodology that functions as a therapeutic resource and a care tool. In this way, the goal is to help people during periods of adjustment to changes, in the treatment of crises or in maintenance or adaptation to new situations [20].

The support group brings the opportunity to family members to be heard and to have their doubts clarified. In addition, it allows the sharing of experiences among relatives with the free expression of their feelings and the opportunity to express their opinions with the certainty of an active listening [21].

Another objective of the group is to promote the cohesion, support and elevation of the self-esteem of its members [22]. These people are facing the same situation. This experience offers emotional support as they can show their feelings of loneliness and isolation, exchange their experiences, information as well as they fill up the gap created in the traditional family sector [23].
Studies have stated that the therapeutic power of the group is in the group itself as the fact that people meet and share their anguish, discouragement, worry, conflict, insomnia, irritation and problems as a whole and these are significant healing agents [20-21]. Therefore, it can be applied in the practice of caring for the family as an instrument of prevention and health promotion in order to avoid possible diseases by simply broadening listening to the other, since it also articulates the context, the content and the relations between People [24].

On the other hand, this strategy can provide a certain autonomy to the patients relatives when dealing with their patients [25].

Nursing is a profession eminently characterized as a social practice, and so care is the essence of it. The application of group strategy as a relational technology means it principal function integrating the act of caring itself. In this perspective, the development of the support group permeated through listening, mutual respect, dialogue, autonomy and creativity, subsidizes care with an integral and humanized characteristic that meets the real demands of the Family’s members [7].

For example, when evaluating the efficiency of group activity by nurses to the relatives of drug users undergoing treatment, the group strategy was considered a useful strategy to maintain strength and hope among people providing spaces and environments conducive to learning and information sharing; As well as a support network for these people too[26].

However, for the development of the group strategy, the nurse must be prepared to follow the movement of the group, taking a critical and sensitive look at the facts and the phenomena that have emerge, in order to capture if the needs of the other are actually being reached [22].

Therefore, the group strategy developed by the nurse can be considered as a provider of energy and a power to keep the Family’s member supported and motivated in maintaining care of his or her loved one and of himself. In this sense, it is a health care tool that nurses can use to improve the integrality of care.

Educational technologies in the context of nursing care

The education used in the perspective of nursing care overlaps the basic principles of its care since, through the educational process, the capacity to care is enhanced and the relationship between the subjects involved is amplified, improving the exchange of knowledge [27].

Among the light technologies produced by nursing, educational technology is used as a facilitating tool for the restoration of the individual’s life, since it favors the construction and reconstruction of the knowledge to be applied in favor of health benefits [27].

In the current world health scenario, it is essential to empower families to have knowledge and skills. In this way, the role of the family member should be emphasized by nurses in order to solve his needs by providing care and, favoring the implementation of interventions. The Family member should learn new skills and have knowledge to perform his new role in a dignified way [28].

The evidences indicate that the nurse, when carrying out the educational practices, strengthens the bond between him and the family especially when he offers orientations close to the reality of the individual. So, before the educational actions are planned, the nurse must listen to the main necessities first. Then, he draws up the strategies [19].

It was developed a study in order to evaluate the main difficulties and necessities faced by family members who care for their dependents. They said they need instructions and instrumental skills. This study also confirmed the importance of developing technological resources with specific information to enable them to develop care [29].

This shows that insufficient orientation and support to these family members interfere in the pro-
cess of the care provided and their quality of life. According to this, it is important that nurses, and other members of the health team join forces to prioritize educational actions geared to the needs of family members so that they learn how to provide a better care.

In this study the following information were available to the Family members: the development of the educational booklet, nursing consultation, serial album, explanatory handbook and empowerment. The booklet developed as an educational resource articulates the technical questions with the human ones with the purpose of humanizing the care of the nurse to the patient and Family. It provides a better quality of life, develops abilities and favors the autonomy [30].

For example, the application of the booklet as an educational technology in health occurred with the Ribeirinhas families. It showed that this resource helps the families take care of their children promoting a healthier life by means of the information that is offered to them in an explanatory way [31].

It is important to remember that when preparing the booklet, the nurse should appropriate the profile of the family member. Cultural, socioeconomic, environmental and religious factors interfere and are part of the construction of the knowledge of each family member and, therefore, must be considered in a way that this technological material be elaborated according to the needs of each one.

The educational booklet emerges as a resource that acts as a decoder of knowledge turning something strange into common. So, it facilitates the dialogical incorporation between the nurse and the Family. It makes the construction of a multidimensional knowledge possible, easily available, inexpensive and capable of empowering patients and families [30].

So, empowerment, understood as an innovative educational life technology, is directly related to how to assist a person increase control over his. This care allows dialogic learning and the development of critical awareness in which the subject finds meaning for a healthy, autonomous and personalized way of living.

Empowering care places individuals as the protagonists of caregiving by empowering them to define their own problems and needs. They learn to solve their own problems and necessities by means of booklets, calendar, diary or external supports in a way that fosters their Well-being and a healthier life [32].

Nursing consultation is another resource used as a technology for care. It is considered as a combination of human, empirical and scientific knowledge that systematizes the new practice in order to provide better and effective care between Family and community [18]. In this perspective, it encourages family members to be protagonists and co-responsible in caring for themselves and who they care for in the process of health and illness.

At present, devices such as teleassistance and appropriation of the internet through web conferencing and email have been considered other means of connecting with the family and benefiting them with educational information [28, 33]. Recent reports on these devices confirm their contributions towards increased control, trust and support, as well as a greater involvement of family members and care [34].

This evidence is clarified in a study developed with caregivers of patients at home who show some difficulties when dealing with their patients. In view of the obtained results, they suggest the use of means of communication as instrumental of educational support such as the telephone and the internet in order to give independence to the care [35]. The study identified that the topics related to family needs during educational development had to do with self-care, feeding, hygiene, positioning about the use of available resources and information about specific techniques for care [28, 30].

The introduction of new technologies as an educational resource was considered an important
complement to the instruction provided by health professionals. However, it should not replace human contact through the eye-to-eye relationship where real needs will be identified in order to determine care strategies.

Educational actions should not be limited to orienting the family in a certain procedure, but rather to dialogue with the family from the point of view of their general needs, stimulating autonomy, exchange of ideas, concepts and opinions about their practice, contemplating the integrity of the care [12].

In sum, more and more educational technologies should be a strategy to meet the necessities of family members. Thus, it is important that the nurse is willing to appropriate himself and apply educational technological resources, seeking the reception, the support and the well-being of the family member to mitigate the burden and reduce the abandonment of the caregiver and consequently to provide him with security in the his care.

Conclusion
As can be seen, health professionals, especially the nurses, value and make use of relational technology when providing care for patients’ relatives. However, this relationship is not always linear and productive in a way that meets the demands for care.

So, it is recommended that nurses reflect on the reorganization of their practice and the possibility of inclusion of group and educational technologies as strategies for nursing care to the needs of family members. Thus, it is considered that the study constitutes a subsidy for health professionals, primarily nurses, to have a special look at their families as a unit of integral care. This means that one must consider the subjectivity and singularity of each family in favor of a warm, integral and quality care.

Regarding the limitations of the study, it is pointed out the broad approach to family members without delimiting a specific sector. This is justified by the scarcity of works that refers to the nurse’s care and the resources used to the studied public. In addition, this research was necessary to encourage a movement to include families in public policies in order to ensure them in the context of health completely.

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