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Silva, Gustavo Dias da; Santos, Márcia Farias de Oliveira dos; Dias, Pollyanna silva cunha; Silvino, Zenith Rosa; Coleta, Marília Ferreira Dela; Matos, Priscila Borges de Carvalho

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Federal University of Rio de Janeiro State



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## INTEGRATIVE REVIEW OF THE LITERATURE

Técnica de incidentes críticos: aplicabilidade nas pesquisas de enfermagem

Critical incident technique: applicability in nursing research

Técnica de incidente crítico: aplicabilidad en la investigación de enfermería

Gustavo Dias da Silva <sup>1</sup>, Márcia Farias de Oliveira dos Santos <sup>2</sup>, Pollyanna silva cunha Dias <sup>3</sup>,  
Zenith Rosa Silvino <sup>4</sup>, Marília Ferreira Dela Coleta <sup>5</sup>, Priscila Borges de Carvalho Matos <sup>6</sup>

### ABSTRACT

**Objective:** to describe the critical incidents technique and ITS applicability in nursing research. **Method:** this is an integrative review about the productions found through PubMed, Latin American literature and Caribbean Health Sciences, Medical Literature Analysis and Retrieval System Online, Scientific Library Online and databases in nursing. **Results:** reading and analysis of the selected studies regarding the applicability of the technique in nursing research enabled grouping into 3 categories: 1-Describe feelings, perceptions and difficulties (69.3%); 2- Analyze situations, behaviors and consequences (23.0%); 3- Report experiences (7.7%). **Conclusion:** from this study, it is concluded that the technique is still little used and disseminated among researchers. This review presents an overview, allows the technical knowledge, consolidating it as an innovative methodology, characterized in particular by its multivalent, and ease of application. **Descriptors:** Qualitative research, Methodology, Nursing.

### RESUMO

**Objetivo:** descrever a técnica de incidentes críticos e sua aplicabilidade nas pesquisas de enfermagem. **Método:** revisão integrativa das publicações encontradas nas bases de dados: Pubmed, Literatura Latino-americana e do Caribe em Ciências da Saúde, Medical Literature Analysis and Retrieval System Online, Scintific Library Online e Bases de Dados em Enfermagem. **Resultados:** a leitura e análise dos estudos selecionados em relação à aplicabilidade da técnica de incidentes críticos nas pesquisas de enfermagem permitiu o agrupamento em 3 categorias: 1-Descrever sentimentos, percepções e dificuldades (69,3%); 2- Analisar situações, comportamentos e consequências (23,0%); 3- Relatar experiências (7,7%). **Conclusão:** a partir deste estudo, conclui-se que a técnica ainda é pouco utilizada e difundida entre os pesquisadores. Esta revisão apresenta um panorama geral e permite o conhecimento da técnica, consolidando-a como uma metodologia inovadora, caracterizada em especial por sua plurivalência e facilidade de aplicação. **Descritores:** Pesquisa qualitativa, Metodologia, Enfermagem.

### RESUMEN

**Objetivo:** describir la técnica de incidentes críticos y su aplicabilidad en la investigación de enfermería. **Métodos:** esta es una revisión integradora sobre las producciones encontradas a través de PubMed, Literatura Latinoamericana y Caribbean Health Sciences, Medical Literature Analysis and Retrieval, System Online científico Library Online y bases de datos de enfermería. **Resultados:** lectura y análisis de los estudios seleccionados con respecto a la aplicabilidad de la técnica en la investigación en enfermería, donde fue posible agruparla en 3 categorías: 1-Describir los sentimientos, las percepciones y las dificultades (69,3%); 2- Analizar situaciones, comportamientos y consecuencias (23,0%); 3- experiencias de informe (7,7%). **Conclusión:** en este estudio se concluye que la técnica es todavía poco utilizada y difundida entre los investigadores. Esta revisión presenta una visión general y permite el conocimiento técnico, consolidándolo como una metodología innovadora, caracterizada en particular por su plurivalencia y facilidad de aplicación. **Descritores:** Investigación cualitativa, Metodología, Enfermería.

1 Enfermeiro Especialista em Neonatologia (UFF). Mestre pelo programa de Mestrado Profissional Assistencial em Enfermagem Assistencial da Escola de Enfermagem Aurora de Afonso Costa (MPEA/EAAAC/UFF). Membro do Núcleo de Estudos e Pesquisas em Cidadania e Gerência em Enfermagem (NECIGEN). Professor Adjunto do Departamento Materno-infantil da Faculdade de Enfermagem da UERJ. Enfermeiro da Unidade de Terapia Intensiva Neonatal da Maternidade Escola da UFRJ. Rio de Janeiro (RJ), Brasil. E-mail: gustavodias@me.ufrj.br 2. Enfermeira Obstétrica (UFRJ). Enfermeira Pediátrica (UERJ). Especialista em Neonatologia (IFF/Fiocruz). Mestranda do Programa de Mestrado Acadêmico em Ciências da Saúde da Escola de Enfermagem Aurora de Afonso Costa (MACCS/EAAAC/UFF). Enfermeira da UTI Neonatal do Hospital Pedro Ernesto - HUPE/UERJ. Enfermeira do Serviço de Educação Permanente do Hospital Infantil Ismêlia da Silveira - HIIS/PMDC. Rio de Janeiro (RJ) Brasil. E-mail: marcia\_red@ig.com.br 3. Enfermeira Especialista em Terapia Intensiva (UFF) e Cardiologia (UNIRIO). Enfermeira do Hospital Federal dos Servidores do Estado - HFSE/MS. Rio de Janeiro (RJ), Brasil. E-mail: enfppollyanna@yahoo.com.br 4. Enfermeira. Doutora em Enfermagem. Titular do Departamento de Fundamentos de Enfermagem e Administração da Escola de Enfermagem Aurora de Afonso Costa (EAAAC/UFF). Coordenadora do Núcleo de Estudos e Pesquisas em Cidadania e Gerência em Enfermagem (NECIGEN). Niterói (RJ), Brasil. E-mail: zenithrosa@terra.com.br 5. Psicóloga. Doutora em Psicologia. Professor Associado III do Programa de Pós-Graduação em Psicologia da Universidade Federal de Uberlândia. Uberlândia (MG, Brasil. E-mail: marilia.coleta@netsite.com.br 6. Enfermeira. Especialista em Enfermagem Neonatal (HUPE/UERJ). Enfermeira da Unidade de Terapia Intensiva Neonatal da Maternidade Escola da UFRJ. Rio de Janeiro (RJ), Brasil. E-mail: pribcm@gmail.com

## INTRODUCTION

# A

plurality of research methodologies that comes from the advance of science, including in the field of nursing, the domain of available technic is essential to both the producer and the consumer of the research, as well as attention to new trends that permeate the referent advance.

The Critical Incident Technique (ICT) had its origin in 1941, during World War II. It was developed by the American psychologist John C. Flanagan (1906-1996), and then Director of the Psychology Program of Aviation of the Air Force of the United States of America, to evaluate the behavior of fighter pilots. Flanagan was the first to make a systematic effort to collect and analyze information from critical incidents.<sup>1</sup>

ICT consists of a set of procedures to collect direct observations of human behavior, to facilitate its potential use in solving practical problems and develop broad psychological principles, also outlining procedures for collecting observed incidents that present significance and special meeting of systematically defined criteria. Incident is understood as any observable human activity that is sufficiently complete in itself to allow for inferences and predictions about the person performing the act. To be critical, an incident should occur in a situation where the purpose or intent of the act seems reasonably clear to the observer and where its consequences are well defined to leave little doubt as regards its effects.<sup>2</sup>

The incident may also be understood as a break from the normal or standard of activity or system. The incidents are relevant situations, observed and reported by interviewees, and can be positive or negative depending on their consequences.<sup>3</sup>

ICT encompasses analyzing incidents reported by people qualified to judgment about a particular work efficiency. Based on the analysis of this incident can extract efficient behaviors or not for the purpose of work. The subjects involved in an activity are asked for simple types of judgments or reports of situations and events that are assessed by the investigator based on agreement/disagreement of these judgements, or reports for the purpose and nature of the activity, or situation under study.<sup>4</sup>

In a phenomenological perspective, ICT is a naturalistic tool that gets verbal or written answers of a respondent on one aspect of his work activity or practical experience. From this perspective, the interviewee is who describes how the situation and results are produced. Therefore, the aim of this technique is to understand the incidents in the individual's perspective, considering the cognitive, affective and behavioral elements.<sup>1</sup>

In Brazil, the first approach to the technique occurred possibly with the inclusion of the study of the methodology in the course of the paper analysis and analog models in



psychology, taught by psychologist and professor Stephaneck in the late 60s. In 1970, Dela Coleta conducted a study that aimed to introduce a scientific process of staff selection for the position of electrician's assistance and has since continued to work with the technic.<sup>5</sup>

Over the past 40 years, since the technique was used successfully in Brazil for Dela Coleta, Brazilian researchers were involved in the adaptation and use of ICT in various areas of knowledge. Initial studies involving research in occupational psychology, but later, by its multivalent nature, the technique has been applied in various fields of knowledge, especially in the area of administration, education and health, as well as psychology.<sup>5</sup>

Among the research in the healthcare area, one of the first studies applying ICT was from nursing in 1980 through a dissertation. It aimed to establish the critical requirements to the work of nursing assistants in hospitalization units from a general learning hospital.<sup>6</sup> Another pioneering study on the use of ICT field of nursing was from Nogueira in 1988, who engaged in describing, through observation systematic shift change at a university hospital, the main events checked and analyzed the failures that occurred in these situations.<sup>7</sup>

In 2004, the teachers José Augusto Dela Coleta and Marília Ferreira Dela Coleta published a book where they make an overview of the history of ICT, review its general concepts and mainly analyze the use of the technique in Brazil, since its first successful use in 1971 until 2004. From the reading of approximately 50 works, the authors expound on “a significant number” of studies employing ICT in Brazil, signaling that the review of the objects works covers a broad range of situations and themes.<sup>5</sup>

From the mentioned above, the guiding question of the study is: how ICT has been used in nursing research? Therefore, this article presents a review of the use of ICT in recent years and its applicability to the various areas of research in nursing.

## METHOD

To reach the objective of the study, we decided to conduct an integrative literature review. This methodology includes relevant research analysis that support for decision making and improvement of clinical practice, enabling the synthesis of the state of knowledge of a particular subject, while identifying gaps in knowledge that need to be filled with the realization of new studies.<sup>8</sup> This method emerges as a methodology that allows for the incorporation of significant applicability of study results in practice to define concepts, theories, and evidence review and analyze methodological problems of a special topic.<sup>9</sup>

Although the methods for conducting integrative reviews vary in the operation of this review, we use the following steps: establishment of the research question, sample selection, data collection, analysis and categorization of studies, discussion of the results and presentation of the review, presented bellow.

The first phase is the development of the theme of the research question defined for

the construction of the integrative review and subsequently defining descriptors and data collection strategies.

This is the guiding question of the review: “What are the scientific productions available in full in national and international databases that show the use of critical incidents technique in nursing research?”

The capture of the publications took place in April 2012. Two of the authors independently processed the search through PubMed, Latin American and Caribbean Health Sciences (LILACS), Medical Literature Analysis and Retrieval System Online (MEDLINE) Scientific Electronic Library Online (SciELO) and Data Bases in Nursing (BDENF).

As criteria for the selection of the sample, there were studies published with text in electronically available entirely in Portuguese, English, Spanish or French, issued from January 2000, in nursing journals or have information in the summary about the association ICT in nursing research. The following keywords were used to process the searches in databases: “critical incidents technique” and “Nursing”, combined by the Boolean connector “AND”. However, due to the reduced number of publications in the databases selected in the VHL, it was chosen to use only the keyword “critical incident technique” to increase the sample and then proceed to the manual selection of the material by reading the summary. In other databases, we use the selection criteria using the keywords combined.

The same authors who have made the searches independently evaluate each job found for eligibility according to the inclusion criteria. The summaries were previously read for information to answer the research question, scientific productions being excluded not explicitly contained data on the use of ICT in nursing research and those who were in duplicate.

To collect the data from the studies that were included in the integrative review, a specific instrument used by faculty researchers and students of a graduate program in nursing was chosen, adapted from Polit, Beck, and Hungler review protocol.<sup>10</sup> The instrument was subjected to apparent and content validation by experts with experience in research.

The instrument contained the following information: title, year and journal in which the article was published, authors with their qualifications and origin, purpose (objective), sample size, characteristics, scenario, research design and instruments, key findings and conclusions.

After translation and/or reading, the selected works were organized in a folder and cataloged in ascending numerical order according to the chronology in which they were read. The collected data were analyzed, categorized and subsequently proceeded to the extraction of information and presentation of results using descriptive statistics and regarding the relationship of the information with the object of interest in each study.

Initially, when processing the search through the VHL with the keyword “critical incident technique”, there 33 abstracts found. In search of combined words “critical incidents technique” and “nursing”, 55 abstracts were captured in PubMed, totaling 88 works for pre-selection.

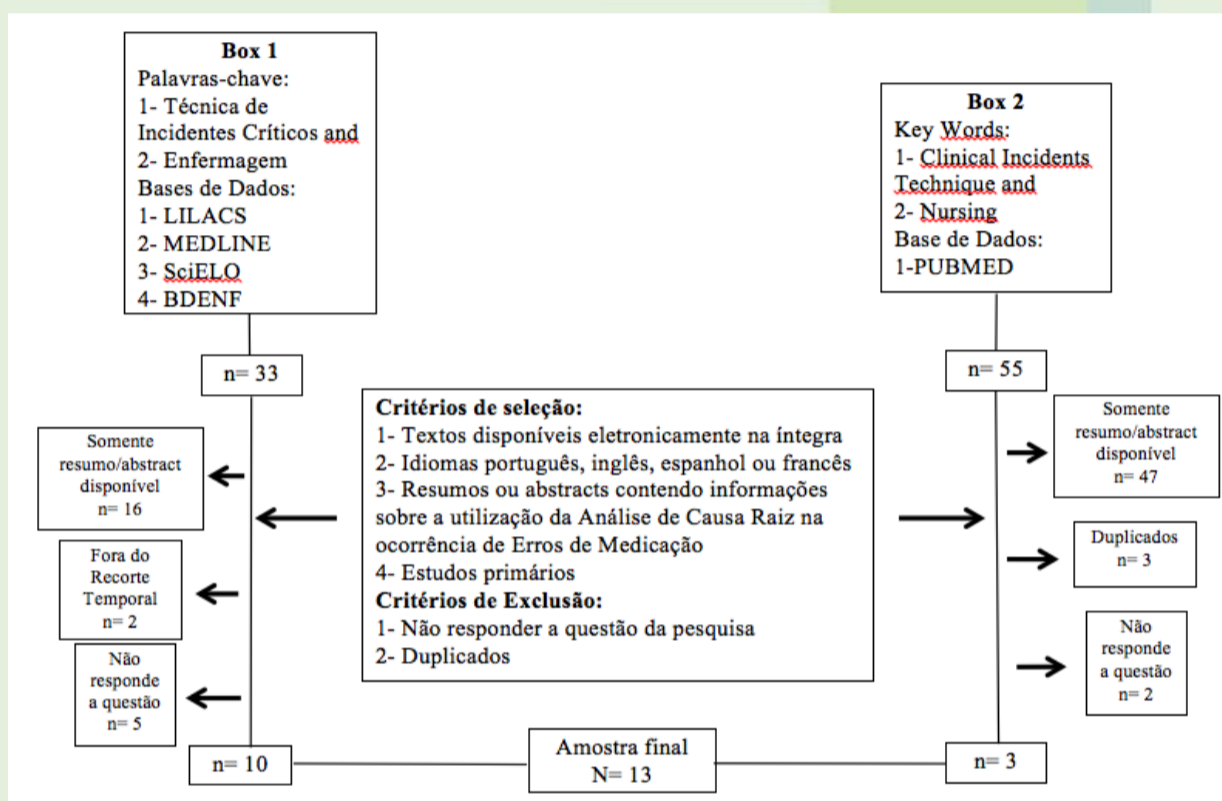
Of the 33 abstracts found in the VHL, we refined 17 full texts available for access in full. Of them, five were excluded for not answering the question of research and two for being out of time studied, totaling a sample consisted of 10 articles for analysis, all from the

LILACS database.

From the texts captured in PubMed, 8 were available electronically in full. Of them, two did not respond to the research question, and three were duplicated, totaling after the exclusions, three full articles, all indexed in MEDLINE database (Figure 1).

The results found by the authors who conducted the search within the eligibility criteria were identical.

Figure 1 - Flowchart of research.



#### Box 1

##### Keywords:

- 1- Critical incidents technic and
- 2- Nursing

##### Database

Only available abstracts n-16

Out of time cutting n=2

Not answering the question n=5

##### Duplicated

##### Selection Criteria:

- 1- Texts available electronically in full
- 2- Portuguese, English, Spanish or French
- 3- Abstracts of information about the use of Root Cause Analysis when occurring medication errors
- 4- Primary studies

##### Exclusion criteria:

- 1- Not answering the research question
- 2- Duplicated

## RESULTS AND DISCUSSION

As shown above, in this integrative review there was a sample of 13 scientific publications for review. From these selected studies, 10 (76.9%) were developed in Brazil, all with the participation of researchers from the School of Nursing of Ribeirão Preto of USP (EERP-USP). Only 03 international studies were identified in the sample and all Swedes.

However, it should be noted that many other studies conducted in other countries have been found but have not been included in this work because they are not available in fully searchable sources.

Table I shows the profile of the authors identified in the review of the sampling. It is noteworthy that most of them were teaching at undergraduate and graduate programs, especially of the EERP-USP.

Table I - Profile of the authors regarding the professional category.

| Professional Category | N  | %     |
|-----------------------|----|-------|
| Nurses                | 23 | 67.6  |
| Doctors               | 4  | 11.7  |
| Psychologists         | 3  | 8.8   |
| Students              | 1  | 2.9   |
| Not informed          | 3  | 8.8   |
| Total                 | 34 | 100.0 |

According to the distribution of the subjects of the studies, most of the work aimed to study, through ICT, nursing staff (36.8%) and inpatients (26.3%). Other population categories as undergraduates, teachers and family members of patients also were studied. As for scenarios, those linked to educational institutions prevailed, including universities and teaching hospitals, which together amounted to 52.7% of the studies selected for review (Table II).

Table II - Categorization of studies according to the target population and scenarios

| Study population | Scenarios |
|------------------|-----------|
|------------------|-----------|



|  | N         | %            |  | N         | %            |
|--|-----------|--------------|--|-----------|--------------|
| Nursing staff                            | 4         | 30.8         | Public and private hospitals and clinics | 7         | 54.0         |
| Patients                                 | 3         | 23.0         | University Hospitals and Clinics         | 3         | 23.0         |
| Undergraduate nursing students           | 2         | 15.4         | Universities                             | 3         | 23.0         |
| Family members                           | 2         | 15.4         |  |           |              |
| Professors/graduation students           | 1         | 7.7          |  |           |              |
| Health professionals/graduation students | 1         | 7.7          |  |           |              |
| <b>Total</b>                             | <b>13</b> | <b>100.0</b> |  | <b>13</b> | <b>100.0</b> |

Reading and analysis of selected studies for this review allowed the grouping and categorizing of the studies according to their core objectives. According to this assessment, four major categories of objectives emerged: 1- Describe feelings, perceptions and difficulties (69.3%); 2- Analyze situations, behaviors and consequences (23.0%); 3- Report experiences (7.7%).

Studies comprising each of these categories are presented in Chart I.

Chart I: Characterization of the studies according to their objectives

| Categories of objectives                            | Studies  |
|---|--|
| 1- Describe feelings, perceptions, and difficulties | Perbone, Peterson, Fernandez, Marques, Zani, Martins, Valsecchi, Ivarsson, Ivarsson. |
| 2- Analyze situations, behaviors, and consequences  | Pupulim, Ribas, Larsson  |
| 3- Report experiences                               | Galvão.  |

Concerning the objects of the selected studies, considering the multivalent character of ICT and its application in various areas of knowledge in nursing, the main results, and conclusions of the selected studies in the review are presented below according to the categories proposed by the review.

#### *Category 1: Describe feelings, perceptions, and difficulties*

Feelings of students in the first contact with the patient were mostly classified as negative critical incidents. The feeling was categorized into three areas: feelings related to the student, the patient and the discipline that was attending. The study helped identify the emotional reactions of the students entered the training field. In this way, they can contribute to the reflection on the teaching plans proposed.<sup>11</sup>

In the perception of nurses, feelings and difficulties in caring for the elderly patient



with cancer pathology, analyzed through the critical incidents, most of them were negative and were related to the nurse, to the patient during service and after care. The study concluded that nurses find it difficult to cope with negative feelings, interfering with the nursing care provided to patients.<sup>12</sup>

Feelings experienced by adult women experiencing menopause have been identified and analyzed in three categories: relationship with a partner, intercourse, and woman-social being. The study provided a more comprehensive understanding of the menopause, offering support for the health care of women contemplating sexual dimension.<sup>13</sup>

The analysis of the consequences showed positive and negative changes in family relationships that occur in the elderly after stroke (CVA). The study revealed the need to work with the family to identify changes and develop an action plan that may favor the relationships and family adapt to new demands.<sup>14</sup>

Positive and negative aspects related to the teaching-learning process of the nursing program in the perception of students and teachers were identified. The category with the significant number of negative references was the behavior of the teacher and relationship difficulties among students. The study shows that teachers have a hard time dealing with the lack of preparation and even immaturity of the graduate student in nursing.<sup>15</sup>

Critical incidents related to the perception of patients with totally implanted catheter mostly generated negative feelings. The independence and the ease of chemotherapy were identified as positive feelings. Some dissatisfactions was self-image and the limitation of daily activities.<sup>16</sup>

The first practical experiences of the undergraduate nursing student with patients have shown predominantly positive reports to the ability to care for highly complex patients, allowing the development of more complex procedures and the implementation of comprehensive care. The behavior of teachers in students' point of view was consistent and positive in the learning process.<sup>17</sup>

Critical incidents related to support experiences by closest relatives of patients awaiting cardiac surgery revealed internal and external factors both positive and negative. An important implication is the understanding of the support experience shown by the closer family member to provide information and support.<sup>18</sup>

Critical incidents related to patient's experience while waiting for cardiac surgery revealed internal and external factors. By identifying the factors that influence the support experiences of these patients, health services can improve the organization of the whole process of health care and develop support programs for the patient.<sup>19</sup>

#### *Category 2: Analyze situations, behaviors, and consequences*

The critical incidents related to the client's body exposition at meeting the basic needs of the intensive care unit (ICU) were mostly negative. The predominant behavior of staff was to protect and maintain privacy. The patient reports the issue of gender prevailed. There was better preparation for nursing to overcome problems related to the provision of basic needs, and the lack of protection of intimacy hurts assistance.<sup>20</sup>

Critical incidents in the teaching-learning process of diabetics, in the perspective of the multidisciplinary health team, were mostly negative. The interaction between the

patients in the group, the multidisciplinary healthcare team were the most valued factors. The data indicate the need for investment to train professionals with ability to work with education groups in diabetes.<sup>21</sup>

In the patients' perceptions, the critical incidents that influenced the participation of care were divided into two areas of the behavior of nurses and answers: stimulate and inhibit participation. The results suggest that there is space for development of behavior to encourage patients to participate in their care.<sup>22</sup>

### *Category 3: Report experience*

The reported critical incidents during the preparation, implementation and evaluation of a continuing education program on leadership and communication, revealed difficulties related to the need for investment in training for the exercise of leadership as a key to the nurse try to enable changes in their daily practice.<sup>23</sup>

This integrative review clearly shows an increased use of ICT in Brazil, especially in health, and more specifically in the area of nursing. When evaluating the use of ICT in Brazil, in a time frame of 30 years, from 1973 to 2003, Dela Cleta and Dela Coleta also found a significant number of scientific papers on health, totaling a sampling of 25 studies using ICT in the health research field.<sup>5</sup>

Authors analyzed studies available in an English database, developed from 1957 to 2007, concluded that ICT is gaining popularity in the research of Nursing. In their sample of 59 studies, the authors claim that ICT has been used to explore some nursing issues and that, in general, can be grouped into three areas: Nursing practice; Management; Nursing Education and Patient care. The results found in this review confirm this categorization since they permeate all three areas proposed by the study.<sup>24</sup>

Finally, after 70 years of development, from 1941 to the present day, and nearly 40 years of use in Brazil, though increasingly used in various fields of knowledge and research in nursing, there is still a trend verified. Of the 19 projects developed in the last 12 years that consisted of this study, 18 were performed by researchers linked to a single institution, Ribeirão Preto Nursing School, and its group of experts in ICT, many with the participation of Dela Coleta. The only exception, developed at the University of Goiás was the study of Melo (2005), also conducted under the supervision of these doctors, as quoted in the study. It worth remember that in his article of 1954 Flanagan speaks of the application of ICT since its inception until the said date, almost analyzing work carried out under his supervision and his large group of collaborators, both in the American Air Forces as in his Research Institute University of Pittsburg, confirming the concentration of study and mastery of technique by an experts group.<sup>2</sup>

## CONCLUSION

The growing number of qualitative research in the health field, especially nursing, and the plurality of methods of such studies, require researchers to constant improvement and mastery of techniques available. Despite having been developed for over 70 years and even after 40 years of use in various areas of science, ICT is not widely used and disseminated among researchers in related fields.

This integrative review presented an overview of the use of ICT in the world, between the various areas of nursing research, and allowed to know the applicability of the technique, drawing a profile of the publications available within the pre-established selection criteria. It was observed that, although there is a continued growth in its use, it is still concentrated in a small group of researchers and experts. Most of them were undergraduate and graduate teachers, especially from Ribeirão Preto School of Nursing, University of São Paulo.

The use of this method in various areas of nursing research, including health care, management, and teaching practice, proves the applicability and consolidation as an innovative methodology, characterized in particular by its multivalent, adaptability and ease of application.

However, other studies are needed in support of the use of this technique in the field of biomedical research and the dissemination of information about the technique in its good applicability.

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Contact of the corresponding author:  
Gustavo Dias da Silva  
Maternidade Escola da Universidade Federal do Rio de Janeiro  
Rua das Laranjeiras, 180. Laranjeiras, Rio de Janeiro (RJ), Brasil  
CEP: 22240-001