Abstract  This is a scoping review of which objective was to identify and to map the use of photography as a data collection technique in qualitative research in the health area. The research was guided by the recommendations of the Joanna Briggs Institute and presented according to the recommendations of PRISMA Extension for Scoping Reviews. Qualitative studies in the health area that used photography as a data collection technique were included. In December 2018, data were collected from 12 databases, including articles, dissertations and theses. The data were analyzed using simple descriptive statistics. The final sample consisted of 138 studies, published between 2001 and 2018, from 21 countries. Articles written by nursing researchers predominated in the sample. The main data collection techniques included photovoice, photo-elicitation and photography, mainly through the participation of adults and children. It was concluded that the main benefits of the photographic method are related to the encouragement of reflection and creativity, the break with formality during the interviews, the capture of subjective impressions and meanings and the strengthening of the participants’ engagement in the research.

Key words  Qualitative research, Health sciences, Photography
Introduction

The search for qualitative methodologies is related to subjective study questions, characterized by the dynamism and interaction of subjects. In agreement with these elements, this research approach is established based on research methods capable of understanding meanings, beliefs and intentions inherent to the subjects’ actions and their social relations.

This is a research approach that is widely used in the health area, which has become popular in the last 30 years, due to its effectiveness in the study of the subtle nuances of human life and the analysis of social processes over time, which are objects of studies consistent with this area of knowledge.

The data collection procedures used in this type of investigation must be able to capture the way people express themselves and talk about the addressed topic. Over the years, the use of interviews and observation as techniques for qualitative data collection has been highlighted. The interview is understood as a meeting between people, so that one of them obtains information about a certain subject through a conversation of a scientific nature. The acquired observation does not comprise only how to see and hear, but also how to assess facts or tools that one wants to study.

In each of these techniques, the qualitative researcher takes a carefully directed approach, aiming to understand, give validity and reliability to their results; always starting from the perspectives of the study subjects.

With the advent of technologies, as well as easy access to them, qualitative research has been treading new paths aiming to adapt to a more interactive and relational reality. Thus, the collection of qualitative data aims to accompany such evolution, both in the sense of capturing perceptions from new techniques and from the perspective of analyzing the impact of these technologies on human relations and other aspects.

Therefore, the qualitative researcher started using more diversified and/or combined data collection techniques, capable of providing a better understanding of a certain social phenomenon.

One example of this type of data collection is the use of visual resources, which allow and improve the analysis and understanding of the study object. There is currently an assortment of visual resources that make it possible to increase the collection of information from subjects, such as: photographs, films, videos, paintings, drawings, collage, sculptures, graffiti and cartoons.

These visual methods increase the quality of the data by uncovering additional layers of meaning, adding validity and depth to the creation of knowledge. They are capable of adding details realized according to the interviewee’s perception and, with that, produce data in an authentic way based on the subjects’ experience and actions.

They can be used in different populations, which allows participants to express their ideas in a non-verbal way. They are especially used as projective techniques, which collaborate for the investigation of unconscious contents, promote dialogue and create a favorable environment for the clarification of subjective aspects not disclosed during verbalization.

Among these visual methods, the use of photography has been widely evidenced in a series of qualitative studies. This is because in studies that use photographic records, the researcher is neutral and the interviewee is progressively offered an opportunity to explore their vision and opinion about a certain object being studied, allowing the subject’s empowerment as a study participant.

Hence, the increasing use of photography as a data collection technique is being observed and, thus, it is essential to investigate how this resource is being used in research in the health area.

Therefore, the research question is presented as follows: ‘How has qualitative research in the health area used photography as a data collection method?’ Therefore, the aim of the study is to identify and map the use of photography as a data collection technique in qualitative research in the health area.

Methods

This is a scoping review guided by the recommendations of the Joanna Briggs Institute Reviewer’s Manual and presented according to the recommendations of the PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. Its protocol was registered in the Open Science Framework at https://osf.io/8wvpf/?view_only=4376158b7ca64d0b90e6f6b6d95aceb08.

The details of the methodological procedures of this scoping review are described in a study presented and published in the annals of the 8th Ibero-American Congress on Qualitative Research (CIAIQ). The study population consisted of qualitative research in the health area that used photography as a data collection technique.

Initially, in November 2018, a search was carried out and no protocols and reviews were iden-
tified with a similar topic. After this diagnosis, the steps to consolidate the scoping review were started.

The research protocol was outlined, guided by the research question, which was built from the mnemonic PCC (P (Population) - Qualitative research; C (Concept) - Photography; and C (Context) - Health area) – how has photography been used in qualitative research in the health area? Afterward, an initial search was carried out in the PubMed and CINAHL databases to identify the main descriptors and keywords used in studies that addressed the topic of interest, based on the combination of Health Sciences Descriptors (DeCS) and Medical Subject Headings (MeSH) identified for the research mnemonic.

In December 2018, data were collected from PubMed Central (PMC), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Web of Science, Scopus, Latin American and Caribbean Literature in Health Sciences (Lilacs) and Electronic Theses Online Service (ERIC). The search in the gray literature (theses and dissertations) was carried out in the Catalog of Theses and Dissertations of the Coordination for the Improvement of Higher Education Personnel (CAPES), Europe E-Theses Portal (DART), Electronic Theses Online Service (ETHOS), Scientific Open Access Repositories of Portugal (RCAAP), National ETD Portal and Theses Canada.

Qualitative research, published in full in Portuguese, Spanish, English or French were included in the review. Editorials, experience reports, theoretical essays and integrative reviews, as well as qualitative research that used other data collection mechanisms were excluded. No time limit was defined.

The title and summary of all identified studies were carried out in pairs, based on the established inclusion and exclusion criteria. The pre-selected publications were recovered in full, analyzed for duplication and the data were extracted to a spreadsheet built using Microsoft Excel 2019, which contained the variables: type of study (whether article, dissertation or thesis); year of publication; country of origin; area of knowledge; type of research; data collection procedures; data analysis procedures; research subjects; data collection environment; detailing of photography use, its benefits and difficulties. The analysis was carried out by three independent researchers. The data were analyzed using simple descriptive statistics.

Results and discussion

The final sample consisted of 138 investigations (Figure 1): consisting mostly of articles (115; 83.3%), followed by theses (16; 11.6%) and dissertations (7; 5.1%). The period of publication went from 2001 to 2018 and showed an increase over time.

The highlighting of scientific articles (‘white’ literature) constitutes a positive aspect, because they comprise strategies that facilitate access to knowledge by researchers and other members of society and, therefore, represent a modality of scientific communication considered to be relevant and accessible11.

Additionally, this finding is consistent with the recommendations of the European University Association report, which emphasizes the need to strengthen “Open Science” through publications on Open Access platforms12 – as is the case with electronic journals indexed in the investigated databases.

Another identified aspect was the growing number of publications on the photographic method over the years, a fact that is consistent with a study developed in 2017 that reveals the increase of productions that employ new data collection techniques, a reality that confirms flexibility and stringency of qualitative research13.

This search for new data collection techniques may be associated with the understanding that the mastery of new modes of investigation constitutes one of the key points to attain new levels in terms of research14.

Regarding the research countries of origin, publications from 21 different countries were identified, highlighting those from the United States of America (33; 23.9%), the United Kingdom (30; 21.7%), Canada (22; 15.9%) and Brazil (14; 10.1%) (Figure 2).

It was demonstrated that the United States and United Kingdom were responsible, together, for 45.6% of the analyzed publications, an aspect that reflects the solid tradition in research that these countries have, a status produced by the incentive, among other initiatives, of programs for scientific and technological development15.

Brazil ranked fourth in the analyzed sample. About this fact, it is worth mentioning that Brazil has a National Open Science Program that promotes the translation of scientific knowledge to the scientific community, society and companies, thus allowing the expansion of the acknowledgment and the social and economic impact of science16. Therefore, the importance of encour-
aging the development of high-quality scientific investigations and, consequently, the necessary disclosure of the results obtained through them, is elucidated.

The investigations were developed by authors from different areas of knowledge, mainly by those working in Nursing (55; 39.9%), Psychology (24; 17.4%), Medicine (14; 10.2%) and Public Health (11; 8.0%). The others belonged to the following areas: Occupational Therapy (7; 5.1%), Nutrition (6; 4.3%), Physiotherapy (4; 2.9%), Psychiatry (3; 2.2%), Social Work (3; 2.2%), Philosophy (3; 2.2%), Physical Education (2; 1.4%), Epidemiology (2; 1.4%), Health Sciences (2; 1.4%), Dentistry (1; 0.7%), and Speech Therapy (1; 0.7%).

The importance of Nursing amidst the group depicts its consolidation as a practical human science, as the systematization and socialization of personal knowledge to the public occurs17.

It is also important to emphasize that scholars have already reported the predominance of Nursing in the development of qualitative research, which may have influenced the importance of this area of knowledge in the analyzed sample. It can be observed that this may result from the possibility that qualitative studies have achieved the answers to particular concerns that involve nursing care, that is, through the adequacy of this scientific approach to the study objects in Nursing18,19.

The authors classified their studies into 19 types of research, with the qualitative type (80; 58.0%) predominating, followed by mixed methods (9; 6.7%), participatory community-based research (7; 5.1%), action research (7; 5.1%) and
The other research modalities included: phenomenological study (5; 3.6%), case study (2; 1.4%), ethnography (6; 4.3%), exploratory study (2; 1.4%), visual interpretive study (1; 0.7%), descriptive interpretive approach (1; 0.7%), field research (1; 0.7%), longitudinal exploratory multiple case study (1; 0.7%), ecological restoration research (1; 0.7%), descriptive research (1; 0.7%), multidimensional approach (1; 0.7%), micro-ethnographic study (1; 0.7%) and participatory interactive methodological research (1; 0.7%).

Some studies (9; 6.7%) did not have a description of the type of research, which was a limiting aspect, since it corroborates the assertion that the lack of clarification on the type of research is related to the way researchers understand the scientific study, as well as the paradigms that guide their practices, which can compromise the quality and methodological rigor of the investigations, aspects that are very important for qualitative research.

As for the data collection procedures, 58 investigations used the photovoice method (42.0%), 52 used photography at some stage of data collection (37.7%) and 28 used the photo-elicitation method (20.3%).

It is also important to emphasize that photography was used in combination with other strategies in 93 (67.4%) investigations, which used 22 different strategies, namely: interview (65; 47.1%), focal group (22; 15.9%), field diary (9; 6.5%), observation techniques (7; 5.1%), group discussion (4; 2.9%), drawing (4; 2.9%), photographic walk (3; 2.2%), Oral Life History (2; 1.4%), questionnaire (2; 1.4%), ethnographic cases (1; 0.7%), cultural probe (1; 0.7%), consultative panel (1; 0.7%), meeting notes (1; 0.7%), theatrical plays (1; 0.7%), participatory mapping (1; 0.7%), portfolios (1; 0.7%), graphic clarification (1; 0.7%), home visit (1; 0.7%), community mapping (1; 0.7%), photo diaries (1; 0.7%) and secondary data (1; 0.7%).

Thus, the importance of the use of the photovoice method or photo-elicitation was observed, which have differences regarding the participation of the subjects and the study objective. Thus, when using the photovoice method, photographic data is discussed in groups (usually in a focal group) aiming to implement community action.
and empower participants. As for the photo-elicitation method, its use aims to assist the process of individual interviews and to facilitate the expression of perceptions, thus constituting a projective and creative strategy for data collection\textsuperscript{20,21}.

Considering the aforementioned concepts and the verification of the methods combined with photography – interview and focal group, among others, one can infer that the lack of theoretical and practical knowledge of the photovoice method and photo-elicitation made some authors fail to define their research based on these classifications, which probably had an impact on the number of investigations with two or more data collection strategies.

As for data analysis, 88 investigations adopted one method (63.8%), 23 combined two methods (16.7%) and 16 used only software (11.6%). Eleven investigations did not address data analysis procedures (7.9%).

Among the methods used without combinations for data analysis, the following stand out: thematic analysis (32; 23.2%), content analysis (20; 14.5%) and Grounded Theory (5; 3.6%), followed by descriptive phenomenology (4; 2.9%), grounded theory (3; 2.2%), inductive approach (3; 2.2%), qualitative analysis (3; 2.2%), inductive thematic analysis (3; 2.2%), analysis by Braun and Clarke (2; 1.4%), comparative analysis (2; 1.4%), dialogue meeting (1; 0.7%), narrative analysis (1; 0.7%), participant’s description (1; 0.7%), critical analysis (1; 0.7%), dialogue synthesis (1; 0.7%), hermeneutic analysis (1; 0.7%), deductive analysis (1; 0.7%), Parse analysis (1; 0.7%), interpretive and co-constructed process (1; 0.7%), existential analysis (1; 0.7%) and mixed-method analysis (1; 0.7%).

The combined analysis methods were: thematic analysis + Nvivo software (9; 6.5%), thematic analysis + Atlas.ti software (3; 2.2%), discourse analysis + Nvivo software (2; 1.4%), content analysis + Nvivo software (2; 1.4%), analysis of ethnographic data + Ethnonursing (1; 0.7%), thematic analysis + triangulation of methods (1; 0.7%), thematic analysis + HyperResearch (1; 0.7%), hermeneutics + data triangulation (1; 0.7%), inductive analysis + content analysis (1; 0.7%), discourse analysis + Atlas.ti software (1; 0.7%) and inductive analysis + Atlas.ti software (1; 0.7%).

Regarding the use of software, 10 investigations used the Nvivo software (0.7%), three used the Atlas.ti (2.2%), one used Dedoose (0.7%), one the Venn Maker (0.7%) and one the Qualus software (0.7%).

Therefore, it was observed that some investigations used some type of software, without specifying the data analysis method. It should be noted that the use of software supports the researcher, as it provides data storage, management and recovery\textsuperscript{22}. However, the process of transforming texts / transcriptions into information and knowledge requires intellectual human traits.

Regarding participants, the investigations comprehend two specific groups: people (134; 97.1%) and physical spaces (3; 2.2%). Regarding the first group, 63 studies worked with adults (45.7%), 24 with children (17.4%), 12 with adolescents and young individuals (8.7%/each) and two with the elderly (1.4%). It should be noted that 23 investigations included people in different age groups (16.7%) and one did not specify the research subjects (0.7%). Still, it is noteworthy that these studies involved a total of 2,674 people (average of 22.5) and that the data collection operationalization required two to 150 participants.

As for the research environments, 40 investigations conducted data collection in the community – urban and rural areas – (28.9%), 39 in health care services (28.3%), 23 in households (16.7%), seven in schools (5.1%) and social spaces (5.1%) – churches, street markets, the circus, associations, among others –, four in universities (2.9%), three in long-term care institutions (2.2%) and one at an event (0.7%). The research development sites were not identified in 14 studies (10.1%).

As for the research subjects, there was a predominance of adults and children. A study carried out in Australia\textsuperscript{23} showed that the use of photography in studies with children, for instance, provided a fun environment that was favorable for the expression of feelings, perceptions and the construction of dialogues, which, in turn, favors in-depth investigations of the meanings of a particular object of study by the researchers.

Although it shows this particular characteristic for children, the photographic method is also recommended for other age groups, as identified in this scoping review, which showed that 64.5% of the sample had this profile. Starting from a playful experience, its use allows the collection of information that is inaccessible to the interview, in a comfortable manner, and the reduction of possible constraints – one of the main benefits of the technique\textsuperscript{24}.

Another aspect of the photographic method is the possibility of enrolling a sample with
a large number of subjects. However, it is necessary to reflect on the number of participants: the qualitative research allows the analysis of subtle nuances of human life and social processes, an aspect that contraindicates investigations with large populations. Due to this characteristic, a thorough analysis by the researcher about the number of participants x data collection technique x data analysis is important, in order not to cause harm / biases in this process.

In addition to these indicators, research detailing regarding the data collection procedures were evaluated and it was found that, in general, they used six similar steps, regardless of the methodological trajectories utilized, namely: 1) training of participants, 2) provision of an instruction manual on the use of digital cameras and the photography technique, 3) availability of disposable cameras and/or digital and/or mobile phone cameras, 4) development and formatting of photographs by the researcher, 5) selection of photographs, 6) group interview or discussion guided by the photographs. Furthermore, the research analysis showed that the development of data collection with photography took from five days to two months, and that a total of three to 27 photographs were used. Thus, to ensure data reliability, attention to the research stages is essential. Of these, the group interview and/or discussion guided by photographs and driving scripts stands out. Thus, to instrumentalize this moment, as well as to discuss the roots of meanings, the acronym SHOWeD was highlighted in the analyzed investigations to structure the questions, where: S - see (what do you see here?), H - happening (what’s really happening here?), O - our (How does this relate to our lives?), W - why (why does this problem exist?) and D - do (What can we do about it?). This is a tool used mainly in research using photovoice.

Another analyzed aspect comprised the benefits and difficulties faced by the authors regarding the use of photographs as a qualitative data collection strategy (Chart 1).

Regarding the benefits, in general, they are directed towards a greater engagement by the participants, an essential aspect of qualitative research, since it optimizes the capture of subjectivities. Thus, it can be said that the photographic method is an important tool for researchers who work with this type of methodological approach.

As for the difficulties, two of them stand out: the ethical questions about the disclosure of the photographs and concerns about the depth of photographic method analysis. To counteract this first one, which is related to the disclosure of photographs that do not ensure personal and personal safety and privacy, the participants can be trained in these topics, and the researcher can edit the digital files.

**Chart 1. Benefits and difficulties regarding the use of photography as a qualitative data collection strategy.**

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Difficulties</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Encourages reflection and creativity</td>
<td>- Involves ethical issues regarding the disclosure of photographs</td>
</tr>
<tr>
<td>- Breaks with formality in interviews</td>
<td>- Disposable cameras can produce low-quality photos</td>
</tr>
<tr>
<td>- Captures subjective impressions and meanings</td>
<td>- Data loss due to inadequate use of the digital camera</td>
</tr>
<tr>
<td>- Enhances discussions</td>
<td>- Difficulties of the participants in the act of photographing</td>
</tr>
<tr>
<td>- Stimulates the child’s playfulness</td>
<td>- Data collection takes a long time</td>
</tr>
<tr>
<td>- Strengthens the participants’ engagement</td>
<td>- Requires financial investments</td>
</tr>
<tr>
<td>- Comprehends a reliable, viable and valid method for research</td>
<td>- Uncertainty about the depth of the analysis</td>
</tr>
<tr>
<td>- Constitutes an attractive strategy</td>
<td></td>
</tr>
<tr>
<td>- Promotes critical and problematizing reflections</td>
<td></td>
</tr>
<tr>
<td>- Boosts curiosity</td>
<td></td>
</tr>
<tr>
<td>- Provides data collection by the projective technique</td>
<td></td>
</tr>
<tr>
<td>- Ensures the protagonism of research participants</td>
<td></td>
</tr>
<tr>
<td>- Represents a suitable method for children</td>
<td></td>
</tr>
<tr>
<td>- Assists in data collection</td>
<td></td>
</tr>
<tr>
<td>- Promotes well-being</td>
<td></td>
</tr>
<tr>
<td>- Contributes to the construction of knowledge</td>
<td></td>
</tr>
<tr>
<td>- Collaborative research</td>
<td></td>
</tr>
<tr>
<td>- Provides researchers with insights</td>
<td></td>
</tr>
<tr>
<td>- Represents a fun technique</td>
<td></td>
</tr>
</tbody>
</table>

Source: The authors, 2019.
Regarding the uncertainties on the depth of the analysis, authors have pointed out that the photographic resource allows the improvement of the interview, with the identification of the diversity and complexity of the subjects’ perceptions. Because it is a spontaneous and creative technique, it enhances the explanation of abstract thoughts. These peculiarities support the researcher regarding the interpretation of the participants’ experiences on a given subject.

Conclusion

It was verified that the use of photography as a data collection strategy in qualitative research in the health area is a growing reality, with several benefits that include the encouragement and facilitation of the expression by the research subjects. It was shown that the use of this method must be preceded by a careful planning of the methodological trajectory to be followed, aiming to face the main difficulties, especially those related to ethical issues.

We expect to have contributed to the construction of knowledge regarding qualitative research, through the presentation of an innovative, creative and playful strategy, which takes into account the subjectivity of the subjects and encourages protagonism.

We also expect to have encouraged the scientific community to develop new studies aiming to better understand the applicability of the photographic method, as well as to evaluate and improve it.

Collaborations

KYA Alves, CCFM Rodrigues, PTCO Salvador and SDM Fernandes participated in the study design, data analysis and interpretation, the writing of the manuscript and its critical review.
References


