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Quality of Case Reports and Adherence to the CARE (CAse REport) Guidelines: Protocol for a Scoping Review

Abolfazl Taheri[1], Peyman Adibi[2], Marzieh Saeedizadeh[1], Seyed Mojtaba Sabagh-Jafari[3] Alireza Rahimi[4] , Alireza Abbasi[5]

1. Health Information Technology Research Canter, Isfahan University of Medical Sciences, Isfahan, Iran
2. Gastroenterology and hepatology research center, Isfahan University of medical sciences, Isfahan, Iran
3. Department of Computer Engineering, Vali -e- Asr University of Rafsanjan, Rafsanjan, Kerman, Iran
4. Head of Clinical Informationist Research Group, Health Information Technology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
5. School of Engineering and Information Technology, University of New South Wales, Canberra, Australia

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Abstract

Background & Objectives: The use of reporting guidelines aims to enhance the completeness and transparency of biomedical publications. The CARE guideline was developed in 2013 to assist researchers in improving the reporting of their case reports. In this study, drawing on evidence from studies that have evaluated the reporting quality of case reports based on the CARE guideline, we aim to conduct a scoping review focusing on the state-of-the-art adherence to the CARE guidelines in case reports and identifying factors associated with adherence to this guideline.

Materials & Methods: The protocol for this scoping review follows the Arksey and O'Malley framework. We searched for meta-research studies indexed in four databases (Web of Science, PubMed, Embase, and Scopus) from 2013 to 2023, for studies primarily aimed at evaluating the reporting quality of case reports based on the CARE guidelines. Study selection was performed in duplicate. This study report followed the PRISMA-ScR.

Results: Our database searches retrieved 35 studies, of which 14 were included for full-text analysis. The publication rate has increased sharply in recent years; seven articles (50%) were published in 2020 and 2021. Further analysis is in progress and scheduled for completion by July 2024.

Conclusion: By conducting this scoping review, we attempted to gain a comprehensive and in-depth understanding of the quality of case reports based on the CARE guideline, identify gaps, and provide recommendations for the more efficient and meaningful use of the CARE reporting guideline in the future.

Keywords: Guideline as Topic, Scoping review, Adherence, Case reports, CARE

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Introduction

Clinical Case Reports (CCRs)—which are detailed descriptions of the symptoms, diagnoses, disease courses, and treatments of one or a few patients—are a prominent form of medical communication that can be traced back to ancient

Corresponding Author: Alireza Rahimi, Head of Clinical Informationist Research Group, Health Information Technology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
Email: alirezarahimi.kh@gmail.com

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Egypt (1). CCRs have been and continue to be the first line of evidence in health care because anecdotes can generate hypotheses, and the initial ideas for many important and original studies in medical science are based on these pieces of evidence (2, 3). The purpose of publishing CCRs is to advance medical scientific knowledge, particularly in raising awareness of unusual conditions, clinical manifestations, diagnostic approaches, innovative treatments, or alternative ways of treating diseases. As a result, they improve the quality of patient management and treatment for rare or complex diseases (4). Furthermore, there is evidence that case reports translate useful data collection in cases of rare phenomena and contribute to the progress and dissemination of novel scientific discoveries three or more years earlier than clinical studies (5).

For research to be usable and reproducible by other researchers, and to facilitate proper interpretation and dissemination of results by other stakeholders, reporting transparency and accuracy are vital. Inadequate reporting of research can lead to wasted resources and risks the publication of inaccurate or misleading findings with implications for healthcare decisions (6).

To improve the completeness, quality, and transparency of CCRs, the CARE 13-item guideline was developed in 2013 through a consensus of experts led by the CARE group (7). This guideline is increasingly being endorsed by influential journals, including dedicated case report journals such as "BMJ Case Reports" (6). Gagnier et al. (7), who developed the CARE guidelines, believed that their implementation by medical journals would improve the completeness and transparency of published CCRs. They also asserted that the systematic aggregation of information from CCRs would inform clinical study design, provide early signals of effectiveness and harms, and improve healthcare delivery. However, the initial estimates based on the results of adherence studies to the CARE guidelines indicate some controversy regarding the quality of published CCRs. Currently, the level of adherence to CARE guidelines and factors associated with improved adherence in CCRs are unknown. A recently published systematic review evaluated adherence to several reporting guidelines in different fields of research (such as CONSORT, PRISMA, etc.), but CARE was not among the evaluated reporting guidelines (8). To fill this gap, it is necessary to conduct a scoping review to identify the available evidence in this area. Scoping reviews can provide more precise and generalizable estimates of the quality of CCRs based on CARE as a standard reporting guideline. Thus, we reviewed all studies that aimed to investigate adherence to the CARE checklist in any research field. The purpose of this scoping review was to inform researchers, guideline developers, journal editors, and evidence users about the current adherence of CCRs to the CARE reporting guidelines. In summary, this protocol details our plans for an upcoming scoping review. This scoping review assessed the current adherence to, gaps in, and efforts needed to adhere to the CCR reporting guidelines.

Materials and Methods

The protocol for this scoping review follows the Arksey and O'Malley framework (9). This was a scoping review of published studies which assessed the quality of CCRs and their adherence to the CARE guidelines. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) criteria (Supplemental-file.1) were used to develop this protocol (10).

Stage 1: Identifying the research questions

The research questions proposed to be answered are mainly in three dimensions:

(1) What is the current quality of reporting of CCRs based on the CARE guidelines?

(2) How do CCRs score on specific items in the CARE guidelines?

(3) Are there any factors associated with adherence to the CARE guidelines?

Stage 2: Identifying relevant studies

For this review, the databases to be searched included PubMed, Web of Science, Embase, and Scopus. We also used search engines and directories such as Google Scholar to search for unpublished studies. The search was limited to the years 2013 to 2023, given that the CARE guidelines were developed in 2013. The search strategy was designed by two authors (AA and AR) who hold degrees in Medical Library and Information Science and are experienced medical librarians.

Relevant published studies were collected, and an initial limited search was performed on PubMed to identify related articles. Text and index terms from related articles were used to develop an overall search strategy for PubMed (Table 1). The search strategy was tailored for each database, and the reference lists of all included articles were screened for further studies.

In addition, a Google search was performed using the terms “CARE OR ??” and “Adherence” to identify relevant grey literature, which included unpublished conference papers and abstracts, academic and institutional websites, and other sources. The Equator Network library (www.equator-network.org) was also checked to identify studies. Furthermore, the reference lists of identified articles were reviewed for additional studies. As a complementary search method, the sources that cited Gagnier et al.'s (2013) study in the Scopus database and Google Scholar were also checked using the citation tracking method. Citation tracking is an umbrella term for multiple methods which directly or indirectly collect related references from so-called "seed references" (11).

Stage 3: Study Selection

After the searches, all identified citations were collated and uploaded to EndNote X9.3.3, and duplicates were removed. Two reviewers independently reviewed titles and abstracts to evaluate inclusion and exclusion criteria, and primary studies were selected. Any disagreement was discussed between the two reviewers until consensus was reached, or by arbitration with a third reviewer. Reasons for exclusion was noted, and the process of study selection was documented in a flow chart (Chart 1), according to the PRISMA-ScR (12).

Table1. Search strategy for PubMed

#	Terms	Fields
1	((quality OR transparency) AND (evaluation OR improv*)) OR adaptation OR adherence OR application OR assessment OR completeness OR implication	Title, abstract, keyword
2	((guideline* OR statement* OR standard*) AND CARE) OR reporting	Title, keyword
3	"guidelines as topic"	Mesh Term / keyword (in other databases)
4	#2 OR #3	-
5	"case report" OR "case reports"	Title, abstract, keyword
6	"case reports”	[Publication Type] (only in PubMed)
7	#5 NOT #6	-
8	"2013" : "2023"	Date - Publication
9	#1 AND #4 AND #7 AND #8	

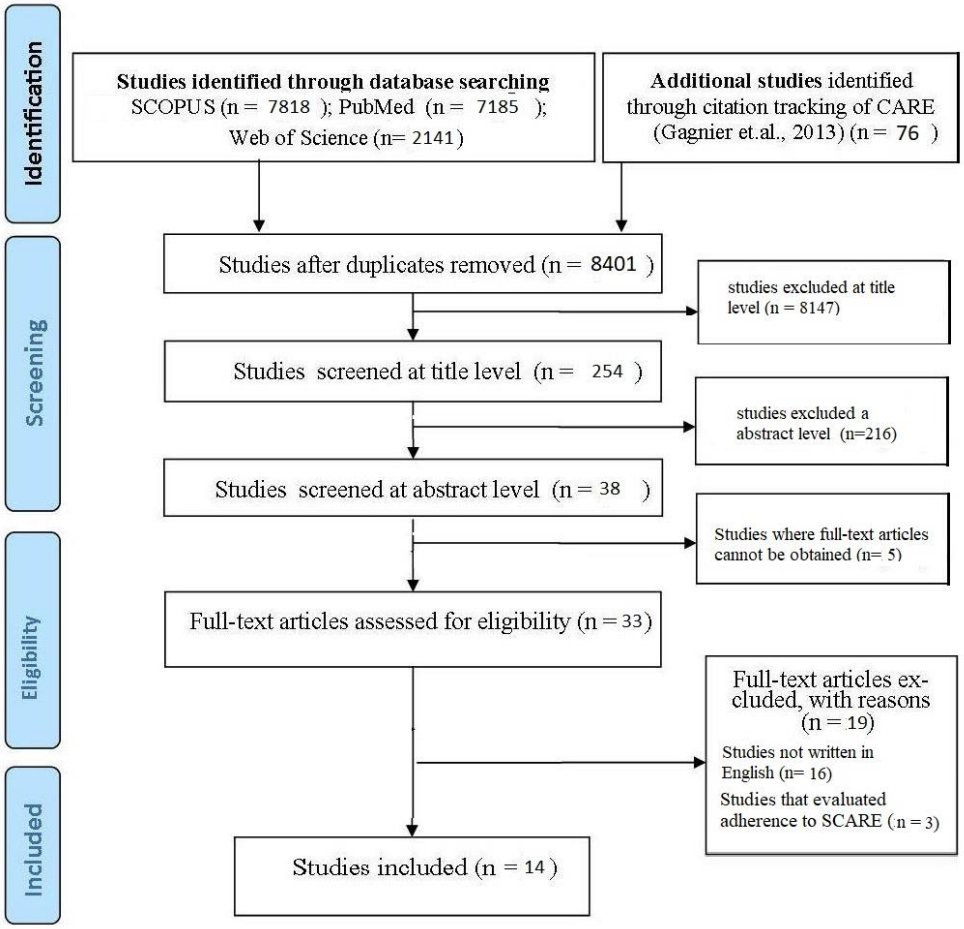


Chart 1. PRISMA diagram chart for this scoping review

Inclusion Criteria

In addition to the parameters of the search strategy, studies were included in terms of meeting the following criteria:

- Studies aimed to examine the quality of CCRs in medical in any field by evaluating their adherence to the CARE guidelines;
- Those studies published between 2013 and 2023;
- Full-text provided studies (not abstracts only);
- Those studies published in English;
- Publication type: all, including journal articles and grey literature;

Exclusion Criteria

Studies were excluded in terms of meeting the following criteria:

- Studies where full-text articles cannot be obtained;
- Studies that evaluated adherence to another CCR reporting guideline such as SCARE (Surgical Case Report);
- Studies not written in English

Stage 4: Data Extraction

Two authors (AA and MS) independently extracted data from included studies into a piloted Excel sheet. The studies data was extracted based on the following: first author, first author's country, year of publication, study population, field, number of reviewers (if mentioned in the included studies), basis for CCR selection, publication date of CCRs, number of CRs, conclusions, factors associated with the reporting quality of CCRs, and reporting scores of CARE checklist items.

Data abstraction disagreements were resolved by discussion and consensus, and a third author extracted the data if an agreement could not be reached. The level of agreement between raters was estimated using the kappa statistic.

Stage 5: Collating, Summarizing, and Reporting the Results

A narrative report and/or a visual form (e.g., tables and charts) was produced, as appropriate, to summarize the extracted data. To answer the second question, we used the 13-item and sub-items CARE checklist (7); the total reporting percentage score was calculated for items and sub-items separately for each study. The scoping review was written in accordance with the PRISMA-ScR Checklist (12).

Chart 1. PRISMA diagram chart for this scoping review

Categories	No.	Categories	No.
Publication year		**Field**	
2017	**1**	Acupuncture / Autotomy	**4**
2018	**5**	General	**2**
2019	**1**	Isolated splenic metastasis	**1**
2020	**4**	Dermatology	**1**
2021	**3**	Nursing	**1**
		Pediatric & adult patients	**1**
No of reviewer		Heart	**1**
2 reviewers	12	COVID-19	**1**
4 reviewers	1	Anesthesia	**1**
6 reviewers	1	dental trauma	**1**
CRs selected based on		**Country of First Author**	
subject	6	Korea	**4**
subject in one journal	**4**	Kingdom of Saudi Arabia	**1**
subject in a group of journals	**2**	India	**1**
Group of journals	**2**	china	**2**
		Lebanon	**1**
		Germany	**1**
Total of assessed CRs		Chile	**1**
2902 CRs		Netherland	**1**
		UK	**1**
		Canada	**1**

COVID-19: Coronavirus disease 2019, UK: United Kingdom, CRs: Case reports

Results

This research aimed to organize the studies published to date to assess the adherence to the CARE reporting guideline by case reports published in journals. Our searches in databases retrieved 33 studies, of which 14 were included for full-text analysis (13-26). General characteristics of included studies are presented in Table 2. The CARE adherence studies were published in a wide variety of journals and were led by authors from many different countries. The publication rate has increased sharply in recent years; there were seven articles (50%) published in 2020 and 2021. Further analysis is in progress and scheduled for completion by July 2024.

Discussion

To our knowledge, this study was the first scoping review conducted on the level of CCRs' adherence to the CARE guidelines. Through this review, we aimed to gain a comprehensive and in-depth understanding of adherence to the CARE guidelines, identify existing gaps, and provide recommendations for more efficient and meaningful use of CCR reporting guidelines in the future.

This scoping review is part of a larger project whose ultimate goal is to explore strategies that could be implemented to improve adherence to CCR reporting guidelines. Our scoping review provided a general mapping of the state of CCR reporting quality following the development of the CARE guidelines. The results of this review could convey a message to editors, reviewers, funders, authors, and guideline developers regarding the extent of incomplete and inconsistent reporting of CCRs, factors related to improved completeness and consistency of CCR reporting, and potential recommendations for these various stakeholders. We believe that this review could be a major first step toward updating the CARE guidelines.

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Conflict of Interest

The authors declare no conflicts of interest.

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Code of Ethics

The study was conducted in accordance with the ethical code IR.MUI.RES.1397.447.

Authors' Contributions

AT and AR conceptualized the study. AT and MS drafted the initial protocol. PA, MSJ, AR, and AA contributed to writing the manuscript and critically reviewed the draft protocol. All authors read and approved the final manuscript.

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