

Prevalence and reporting quality of mixed methods studies in palliative care and end-of-life research: A methodological review

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Introduction

- Mixed methods research (MMR) is a valuable approach that can **enhance the evidence base** in palliative care and end-of-life research
- MMR relies on a set of designs and procedures that involve the **integrated use** of qualitative (QUAL) and quantitative (QUAN) methods in a sustained program of inquiry
- By combining the strengths of qualitative and quantitative methods, palliative care researchers are able to: (1) gain a more **comprehensive** understanding, (2) describe and explain **complexity**, and (3) develop and evaluate **complex** interventions

Context and Problem

- **Two reviews** on the use of MMR in palliative care have been published to date: Flemming et al. (2008) and Seymour (2012)
- **Two limitations** affect these two reviews:
 - **New MMR studies** may have been published in the seven years that have elapsed since the last review was undertaken in 2012
 - Neither of these two reviews examined the **reporting quality** of the studies included

Aim of the Review

- The **aim** of this review was to examine **how MMR has been used and reported** in the articles published in eight palliative care journals between 2014 and 2019
- The following **specific aims** were addressed:
 - To describe the **prevalence** and **characteristics** of the empirical mixed methods articles published in these journals
 - To examine the **MMR features** and reporting quality of these articles

Methods: Search Strategy

- This study examined all the articles published between January 2014 and April 2019 in the following **8 palliative care journals**: *Palliative Medicine, Journal of Palliative Medicine, BMJ Supportive & Palliative Care, BMC Palliative Care, American Journal of Hospice & Palliative Medicine, Journal of Palliative Care, Journal of Hospice & Palliative Nursing, and Palliative & Supportive Care*
- The titles and the abstracts of the articles were downloaded from the **PubMed database** and imported into EPPI-Reviewer 4. Two independent reviewers screened the articles

Methods: Inclusion and Exclusion Criteria

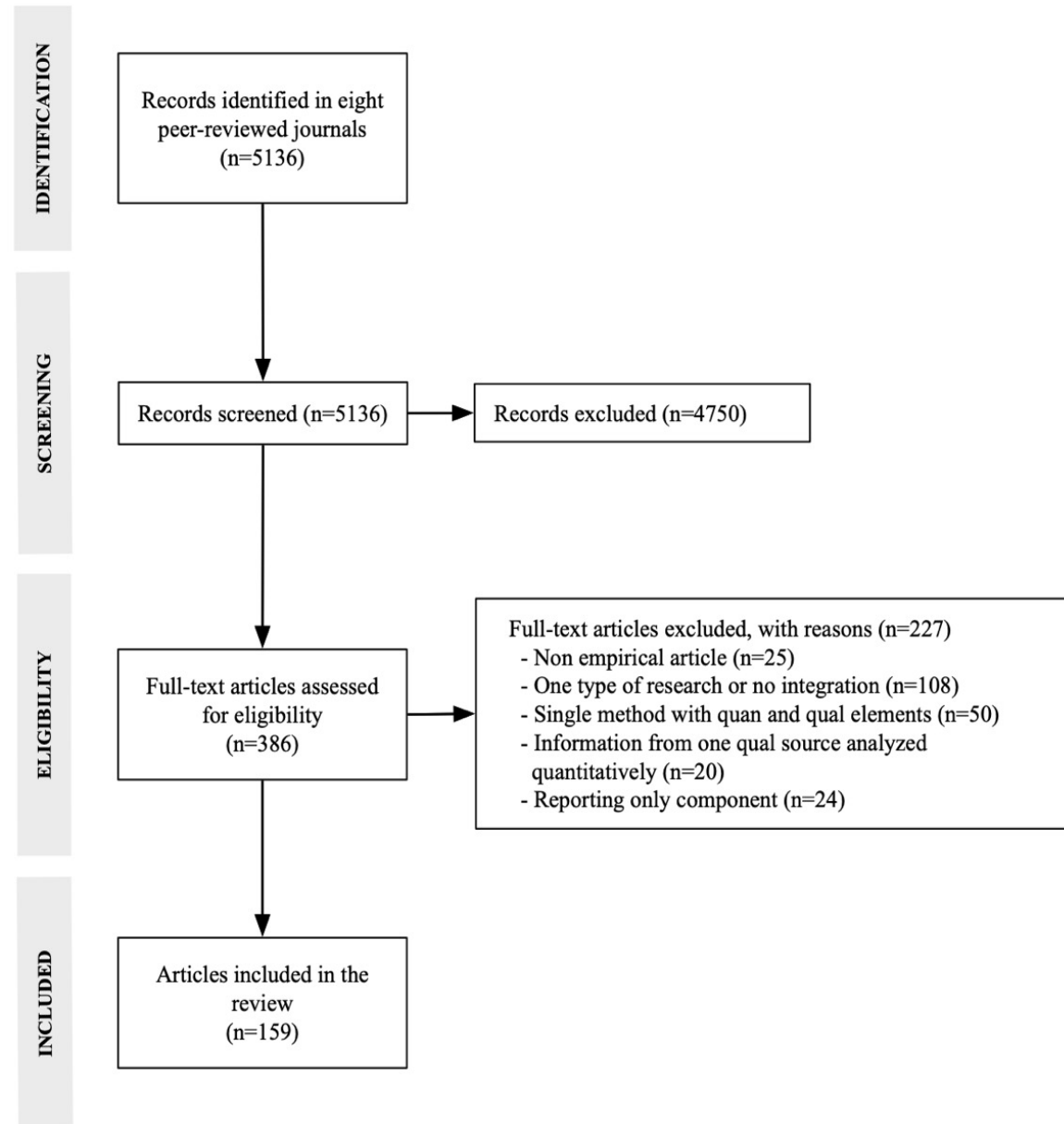
- In order to be included in the review, articles **needed** to:
 - Report an **empirical study** involving the collection of QUAN and QUAL data and the use of QUAN and QUAL analyses
 - Provide **evidence of integration of the QUAL and QUAN components**, include a description of where and how the integration was carried out, refer to the attempt of integrating methods, or use words associated with integration
- Articles reporting a systematic review and non-empirical articles, including protocols, theoretical and methodological papers, editorials, commentaries, letters to the Editor, and book reviews, were **excluded**

Methods: Data Extraction and Coding

- Standardized **data extraction form** that included: publication metadata, study purpose, procedures followed in the QUAL and QUAN components, and features characterizing the MMR component
- The **coding** scheme, applied independently by two researchers included the **Good Reporting of a Mixed Methods Study (GRAMMS)** guidelines suggested by O’Cathain et al. (2008)
- **Descriptive statistics** and **crosstabs** of the coded data, and **qualitative content analysis** of the data extracted from the articles were carried out

Findings: PRISMA Flowchart

PRISMA Flowchart



- The initial search generated a total of 5136 articles
- After assessing eligibility, we included 159 articles reporting empirical mixed methods studies

Findings: Prevalence of MMR studies

Six-year prevalence of mixed methods studies published in eight palliative care journals

	Year							Prevalence	
	January 2014	2015	2016	2017	2018	April 2019	Total	Mixed methods studies	%
American Journal of Hospice and Palliative Medicine	91	102	106	115	186	98	698	26	3.7
BMC Palliative Care	50	56	77	76	97	30	386	32	8.2
BMJ Supportive and Palliative Care	33	53	43	57	77	48	311	17	5.4
Journal of Hospice and Palliative Nursing	37	44	40	45	48	17	231	8	3.4
Journal of Palliative Care	13	22	0	15	39	11	100	3	3
Journal of Palliative Medicine	114	115	134	135	181	23	702	23	3.2
Palliative and Supportive Care	51	75	51	53	104	35	369	20	5.4
Palliative Medicine	64	73	63	65	123	40	428	30	7
Total	453	540	514	561	855	302	3225	159	4.9

Findings: Characteristics of MMR Studies

Characteristics of the 159 articles included in the review

	n	%
<i>Study identification regarding mixed methods</i>		
Self-identified as mixed methods	108	67.9
Non-identified as mixed methods	51	32.1
<i>Key literature cited on mixed methods</i>	38	23.9
<i>Study purpose</i>		
Assessment of palliative care needs	4	2.5
Evaluation of an intervention in, or program or service for palliative care	69	43.4
Investigation of a research topic in palliative care	51	32.1
Development and evaluation of an intervention in, or program or service for palliative care	6	3.8
Development and validation of a quantitative instrument for palliative care	10	6.3
Development of a tool or model for palliative care	19	11.9

¹Articles published until April 2019.

Findings: MMR Features of Studies

Mixed methods research features of the 159 articles included in the review

	n	%
<i>Justification for using mixed methods research¹</i>		
Complementarity	122	82.4
Development	66	44.6
To inform data collection	42	28.4
To inform sampling	24	16.2
Triangulation	20	13.5
<i>Type of mixed methods design</i>		
Convergent	92	57.9
Sequential exploratory	16	10.1
Sequential explanatory	30	18.9
Multistage	21	13.2
<i>Integration at the methods level²</i>		
Merging	101	82.1
Building	43	35
Connecting	22	17.9
<i>Integration at the reporting level³</i>		
Narrative	87	82.1
Joint display	15	14.2
Data transformation	4	3.8

^{1, 2, 3} Categories are not mutually exclusive. The percentages are calculated relative to the number of articles that included information on this feature.

Findings: MMR Reporting Quality

Reporting quality of the 159 articles included in the review based on compliance with the six GRAMMS guidelines

	Yes	Yes, but	No
1) Describes the justification for using mixed methods research to the research question	100 (62.9)	48 (30.2)	11 (6.9)
2) Describes the mixed methods design in terms of the purpose, priority and sequence of methods	8 (5)	44 (27.7)	107 (67.3)
3) Describes each method in terms of sampling, data collection and analysis	106 (66.7)	51 (32.1)	2 (1.3)
4) Describes the integration of the quantitative and qualitative components ¹	106 (66.7)	17 (10.7)	36 (22.6)
5) Describes any limitation of one method associated with the presence of the other method	6 (3.8)	0 (0)	153 (96.2)
6) Describes any insights gained from mixing or integrating methods	42 (26.4)	5 (3.1)	112 (70.4)

¹ For the purpose of this study, the authors modified the wording of this guideline as compared to the original.

Discussion

- Only **fewer than 5% of the empirical articles** published during the six-year period under study used an MMR design
- This low prevalence of MMR articles **could be explained** by the existence of several practical barriers:
 - Pressure to generate evidence rapidly in dynamic healthcare environments
 - Need to obtain extensive funding
 - Need to build interdisciplinary teams of qualified researchers with varied methodological skills
 - Need to deal with potential disagreements within these teams

Discussion

- The reporting quality of the MMR articles published in the 8 journals examined **is inadequate**: none of the articles included in our review fulfilled all 6 GRAMMS guidelines
- Palliative care and other health researchers **face important challenges** when reporting MMR:
 - Length limitations of journals
 - Practitioners' lack of familiarity with MMR
 - Complexity of reporting integration
 - Authors' lack of knowledge of reporting guidelines

Recommendations

1. Researchers need to **write concisely** to represent the complexity of the process and findings of MMR with sufficient clarity within the length limitations of the journals
2. Since integration of methods is an activity that demands specialized methodological skills, **researchers should receive specific training in MMR**

Recommendations

3. Journal **editors could play a key role** in improving MMR quality articles by:

- Publishing editorials and methodological articles that include **field-specific guidelines** for reporting MMR
- Encouraging authors and reviewers to **use existing published guidelines** for reporting MMR
- Publishing **well-presented MMR articles** that can serve as examples of adequate reporting

Thank you!
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