REPORTING OF SYSTEMATIC REVIEWS AND META-ANALYSES- A BIBLIOMETRIC ANALYSIS OF RESEARCH PUBLICATIONS IN PALLIATIVE CARE JOURNALS

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Abstract
Context: Systematic reviews and meta-analyses are regarded as the highest in the hierarchy of evidence which require clinicians to be able to efficiently locate, critically appraise and appropriately apply the best available palliative care evidence to particular clinical care scenarios.
Aims: This study aimed to perform a bibliometric analysis of systematic reviews and meta-analyses in palliative care journals.
Settings and Design: Systematic review of palliative care journals
Methods and Material: MEDLINE database was searched for journals with name ‘palliative’ in their title and articles published from January 2007- December 2011 were then searched in individual journals using search terms ‘systematic review’ OR ‘meta-analysis’ in Title/Abstract. The reporting rates of all journals were compared. The selected articles were categorized into assessment and treatment. The articles were also grouped under practice, education, research and administration.
Statistical analysis used: Descriptive analysis using frequencies and percentiles was done using SPSS for Windows version 16.0.
Results: The overall reporting rate for systematic reviews and meta-analyses was 1.97% (79/4000). Palliat Med had the highest reporting rate of 7.95% (47/591) followed by BMC Palliat Care at 5.55% (5/90) and J Palliat Care at 2.04% (4/196). Medical journals had the highest reporting rate of 2.89% (59/2040) followed by multidisciplinary journals at1.33% (19/1419), nursing journals at .21% (1/464) and other (social work) journals at 0% (0/77).
Conclusions: The twelve palliative care journals analyzed in this study published few systematic reviews and meta-analyses at a five-year reporting rate of 1.97%, with Palliat Med having the highest reporting rate.
Keywords: evidence-based palliative care, research, journal reporting, publication trend, hierarchy of evidence

1. Introduction:
The process of Evidence-based palliative care (EBPC) requires clinicians to be able to efficiently locate, critically appraise and appropriately apply the best available palliative care evidence to particular clinical care scenarios.¹ The current volume of medical and scientific literature is unmanageable and traditional approaches to continuing education cannot fully address the information needs of practicing clinicians in the era of EBPC. The rate of growth in palliative care clinical trials as a proportion of all palliative and hospice publications was on average 1.4 times greater than in the corresponding general literature.²
Systematic reviews have many advantages over traditional narrative reviews; importantly, the use of systematic and explicit methods mean that bias in identifying, selecting and summarizing the evidence is minimized.³ A systematic review aims to synthesize all available individual studies on a certain topic and uses explicit and reproducible methods for searching the literature, while a meta-analysis is a mathematical synthesis of the results of these individual studies.⁴ Systematic reviews and meta-analyses of well-designed and executed randomized controlled trials have the potential to provide the highest levels of evidence to support diagnostic and therapeutic interventions.⁵ A systematic review or meta-analysis is guided by a research protocol, which includes (a) the research question, (b) inclusion and exclusion criteria with respect to the target population and studies, (c) guidelines for obtaining relevant studies, (d) methods for data extraction and coding, (e) methods for data synthesis, and (f) guidelines for reporting results and assessing for bias.⁶ Meta-analyses are considered to be more precise in their estimates since the overall pooled effect measured commonly using the inverse variance method, is a weighted average of the individual study effects, where each weight is the inverse of the study variance.⁷
Good palliative care practice requires evidence of effectiveness to address deficits in care, strive for further improvements, and justly apportion finite resources. Such an evidence-based shift will empower care providers to promote optimal patient outcomes and decrease practice variability. Patients experiencing life-threatening illnesses deserve to receive palliative care services that are informed and driven by high-quality research findings.

As we move beyond anecdotal evidence, the paucity of research in hospice and palliative care has resulted in the absence of a sound, scientific foundation for clinical practice. Most clinical practice performed in this area has not received systematic evaluation and therefore lacks scientific credibility. Thus there exists a dearth need to evaluate the evidence base on reporting of systematic reviews and meta-analyses in palliative care research. There were no previous bibliometric analysis for systematic reviews and meta-analyses performed in palliative care journals so far.

Previously published studies on analysis of palliative care journals were on reporting of moral problems (ethical issues), euthanasia, chaplains and community-based clergy, and, religion and spirituality, cancer pain, pediatric palliative care and quality of life. The objective of this present study was to perform a bibliometric analysis of systematic reviews and meta-analyses in palliative care journals.

2. Subjects and Methods:
2.1 Search strategy and criteria: MEDLINE database was searched for journals with name ‘palliative’ in their title and articles published from January 2007- December 2011 were then searched in individual journals using search terms ‘systematic review’ OR ‘meta-analysis’ in Title/Abstract.

2.2 Data synthesis: The total number of articles in all the selected journals was taken as N. The number of included articles (N₁) based on search criteria were compared with total number of published articles (N) to obtain reporting rates (N₁/N%) for each journal.

The journals were categorized broadly into multidisciplinary, medical, nursing and other (social work) categories of palliative care journals. The included studies were categorized into assessment and treatment, and then grouped under practice, education, research and administration. The topics or areas covered were studied under disease condition (cancer or general), target population (healthcare professional, patient or caregiver) and issues in provision of care.

2.3 Data analysis: Descriptive analysis using frequencies for number of studies with respective percentiles was used for reporting characteristics and was done using 95% confidence interval by SPSS for Windows version 16.0 (SPSS Inc, Chicago, IL).

3. Results:
Of the 39,68,189 abstracts listed in MEDLINE during the five year period, 32,689 abstracts were identified as systematic reviews and meta-analyses, and of them 89 articles were published in all the twelve palliative care journals. Out of the 89 obtained citations, a final list of 79 articles were considered suitable for inclusion, thus making the overall reporting rate for systematic reviews and meta-analyses to be 1.97% (79/4000). There were 10 meta-analyses and 69 systematic reviews. Palliat Med had the highest reporting rate of 7.95% (47/591) followed by BMC Palliat Care at 5.55% (5/90) and J Palliat Care at 2.04% (4/196). See table-1 for respective reporting rates for all palliative care journals. Medical journals had the highest reporting rate of 2.89% (59/2040) followed by multidisciplinary journals at 1.33% (19/1419), nursing journals at 0.21% (1/464) and other (social work) journals at 0% (0/77).

### Table-1: Comparison of reporting rates of systematic reviews and meta-analyses between palliative care journals

| Journal   | Number of published articles (2007-2011) N | Number of systematic reviews/ meta-analyses N₁ | Reporting rate N₁/N% |
|-----------|------------------------------------------|----------------------------------------------|----------------------|
| AJHPC    | 497                                      | 2                                            | .40%                 |
| BMCPC    | 90                                       | 5                                            | 5.55%                |
| COSPC    | 268                                      | 4                                            | 1.49%                |

Palliat Med had the highest reporting rate of 7.95% (47/591) followed by BMC Palliat Care at 5.55% (5/90) and J Palliat Care at 2.04% (4/196). See table-1 for respective reporting rates for all palliative care journals. Medical journals had the highest reporting rate of 2.89% (59/2040) followed by multidisciplinary journals at 1.33% (19/1419), nursing journals at 0.21% (1/464) and other (social work) journals at 0% (0/77).
3.1 Meta-analyses: All the 10 meta-analyses (reporting rate= 0.25%) were on practice and they included 8 on cancer and 2 on other diseases or general. Topical focuses were place of death,25 surgery,26 adverse events,27,30,46 medical management,34,46,76 psychosocial aspects,70 prognosis36 and referral patterns.75

3.2 Systematic reviews: The 69 systematic reviews (reporting rate= 1.72%) included 33 reviews which were on assessment21,28,31,35,37-41,43,45,52,71,72,79,81,83-9,91,92,93-9 and 36 on treatment.22-4,29,33,42,44,47-51,53-68,74,78,80,82,90

3.2.1 Systematic reviews on assessment: The 33 assessment reviews comprised of 26 on practice,21,31,35,37-40,43,45,52,72,81,83,85,86,88,89,91,92,93-9 one on education,41 three on research,28,32,84 two on administrative aspects,79,87 and one addressing both practice and research.71 Among the 33 assessment reviews, 26 reviews were focused generally on all disease conditions and 7 reviews were on cancer. The topics reviewed in assessment studies were outcome measurement,21,31,37,40,43,45,52,71,79,81,83,85,92,95,98 psychosocial aspects,28,39,45,83-5,89,91,96,97,99 symptoms and signs,32,35,38,86,98,99 prognosis,37,88,93 patient-physician communication43,72 and model of care.8

3.2.2 Systematic reviews on treatment: The 36 systematic reviews on treatment included 31 reviews on practice,23,24,29,33,42,44,47,9,51,53-57,68,74,78,80,82,90 one on education,30 two reviews on research69,73 and two reviews on administration.22,77 25 reviews were on cancer, 8 reviews were on general focus, and one each on advanced dementia,33 end-stage renal disease,42 and osteoarthritis.49 The areas reviewed in the treatment studies were medical management,44,47,9,51,55,56,68,78,80,82 complementary and alternative medicine,42,53 non-pharmacological management,90 nutrition,33 and model of care,69,77,87 to address symptoms and signs such as pain,55-68,78,80 cachexia,53 and breathlessness90 in a range of study populations like caregivers,24,54,73 care staff50 and patients’ experiences.74 The miscellaneous focuses were on end-of-life,22,23 psychosocial aspects50 and adverse events.78

4. Discussion:
This study is the first of its kind in the field of palliative care, being a systematic review of reviews in palliative care journals. However, conducting such systematic review of reviews is associated with some methodological challenges100 which include: (i) sources, (ii) study selection, (iii) quality assessment (i.e. the extent of searching undertaken for the reviews, description of study selection and inclusion criteria, comparability of included studies, assessment of publication bias and assessment of heterogeneity), (iv) presentation of results, and (v) implications for practice and research. The present review found a five-year reporting rate of 1.97% for systematic reviews and meta-analyses in 12 palliative care journals, which was much higher than the one-year reporting rate of 0.72% in fifteen orthopaedic journals,101 and far lesser than the one-year reporting rate of 5.2% in two general surgical journals.102 Hui et al103 found a steady increase in reporting rate of systematic reviews in palliative oncology literature from 6% in 2004 to 8% in 2009. The relatively lesser reporting of meta-analyses in palliative care journals throws light on the actual dearth in their number in PubMed and also in Cochrane database of systematic reviews.104 This study reviewed articles from Medline since it is the most common and widely accessed database till date, but Tieman et al105 found that the CINAHL, Embase and PsycINFO bibliographic databases hold sizeable repositories of palliative care articles not
indexed on Medline. Hence future reviews incorporating other databases would be more comprehensive to address appropriate clinical questions.

As clinicians, we need proper methodological training to perform good systematic reviews and must ask the appropriate questions before we can properly interpret such a review and apply its conclusions to our patients. Authors in developing countries need to be trained through capacity building in research synthesis, so that more systematic reviews and meta-analyses could be performed in the Asian or African region. This study found no systematic reviews and meta-analyses targeting pediatric population, which might be attributed to lesser reporting rates of pediatric palliative care among the palliative care journals and a lack of research-based evidence. Focus on general palliative care was relatively lesser compared to cancer, which again needs attention. This review found more articles on cancer which was evident since cancer was highly represented in medical journals per se. Although there is some evidence, there is still scope for more, when it comes to systematic reviews and meta-analyses in EBPC. Since most of the systematic reviews studied randomized controlled trials, the participant eligibility criteria in those studies determine the generalizability of the review findings into practice. Failure to adequately assess study quality, funding bias, publication bias, reliance on outcomes that provide no help in clinical decision-making, analysis errors and the incorrect use of evidence statements are all common pitfalls in systematic reviews which require an in-depth scrutiny prior to implementation. Ethical issues not only question the authority of randomized controlled trials but also the systematic reviews. Interpretation of systematic reviews is the next step in EBPC. The present study was not intended to perform a quality appraisal of the published systematic reviews, but future studies using AMSTAR- a quality measurement instrument or its revised version- R-AMSTAR could be performed to evaluate the systematic reviews in palliative care. These two tools have established reliability and validity and previous such reports using AMSTAR tool were published in Indian medical journals.

More than one half of hospice and palliative care studies were reported in just 43 journals which were not specialist palliative and hospice care journals. Hence, searching other journals would yield much different results. Palliative care journals have an increased responsibility to publish more systematic reviews and meta-analyses and based on the findings of Bhandari et al, systematic reviews were more cited than narrative reviews and the journals publishing more systematic reviews had higher impact factor, and was widely cited in specialty and non-specialty journals alike. Future studies on association of impact factor with reporting characteristics in palliative care journals on the quantity and quality of systematic reviews are needed. Indian Journal of Palliative Care being the only journal representing palliative care research in developing countries and Asia, it has a huge responsibility to publish more high-level evidence hierarchy-based research to improve the global profile in palliative care.

**Conclusion:**
The twelve palliative care journals analyzed in this study published few systematic reviews and meta-analyses at a five-year reporting rate of 1.97%, with *Palliat Med* had the highest reporting rate of 7.95% (47/591) followed by *BMC Palliat Care* at 5.55% (5/90) and *J Palliat Care* at 2.04% (4/196). There was equal representation of focus on assessment and treatment, with more articles on practice and lesser number of reviews on education, research and administration in palliative care.

**Key Messages:**
The reporting rate for systematic reviews and meta-analyses was very low among the palliative care journals and there is need for further research and improved reporting in order to improve the evidence-base for providing adequate palliative care delivery.
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