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Harms Reporting in Systematic Reviews of Microvascular Free Flap in Head and Neck Reconstruction

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Background

Head and neck cancer (HNC) is a global issue with half a million related deaths worldwide in 2020.¹ Modern treatment of HNC involves one, or a combination of, surgery, chemotherapy, and radiation.² Following surgery, microvascular free flaps (MFF) are the standard of care for reconstruction of qualifying defects.³ The American Academy of Otolaryngology Head and Neck Surgery have deemed systematic reviews (SRs) as the highest level of evidence and therefore, are consistently used to shape policy and guideline decisions.⁴ However, throughout various fields of medicine it has been shown that harms reporting among SRs is inadequate.^{5,6} In response, we aimed to evaluate the completeness of harms reporting in SRs focused on MFF reconstruction of the head and neck.

Methods

This cross-sectional analysis included searches from the following major databases from 2012 to June 1, 2022: MEDLINE (Pubmed and Ovid), Embase, Epistemonikos, and the Cochrane Database of Systematic Reviews. In a masked duplicate manner, screening was performed using Rayyan, and data was extracted using a pilot-tested Google form. AMSTAR-2 was used to appraise the methodological quality of reviews, and Corrected Covered Area was calculated to detect primary study overlap across all reviews. Reviews were then grouped in pairs of two, called dyads, and Corrected Covered Area was calculated again for each individual dyad. Dyads with high overlap ($\geq 50\%$) were further investigated for accuracy of harms reporting.

Results

Our initial search yielded 268 records, with 50 systematic reviews meeting inclusion criteria. A total of 46 (92%) of the included reviews demonstrated 50% or more adherence to the items assessed in our harms checklist. In addition, 34 (68%) reviews separately defined harms in the methods, while 6 (12%) reported a severity scale addressing harms. Our Corrected Covered Area tool revealed 0.6% primary study overlap across all reviews, and one dyad with high overlap ($\geq 50\%$). No statistically significant relationship was observed between the completeness of harms reporting and reviews listing harms as a primary outcome, reviews reporting adherence to PRISMA, or a review's AMSTAR rating.

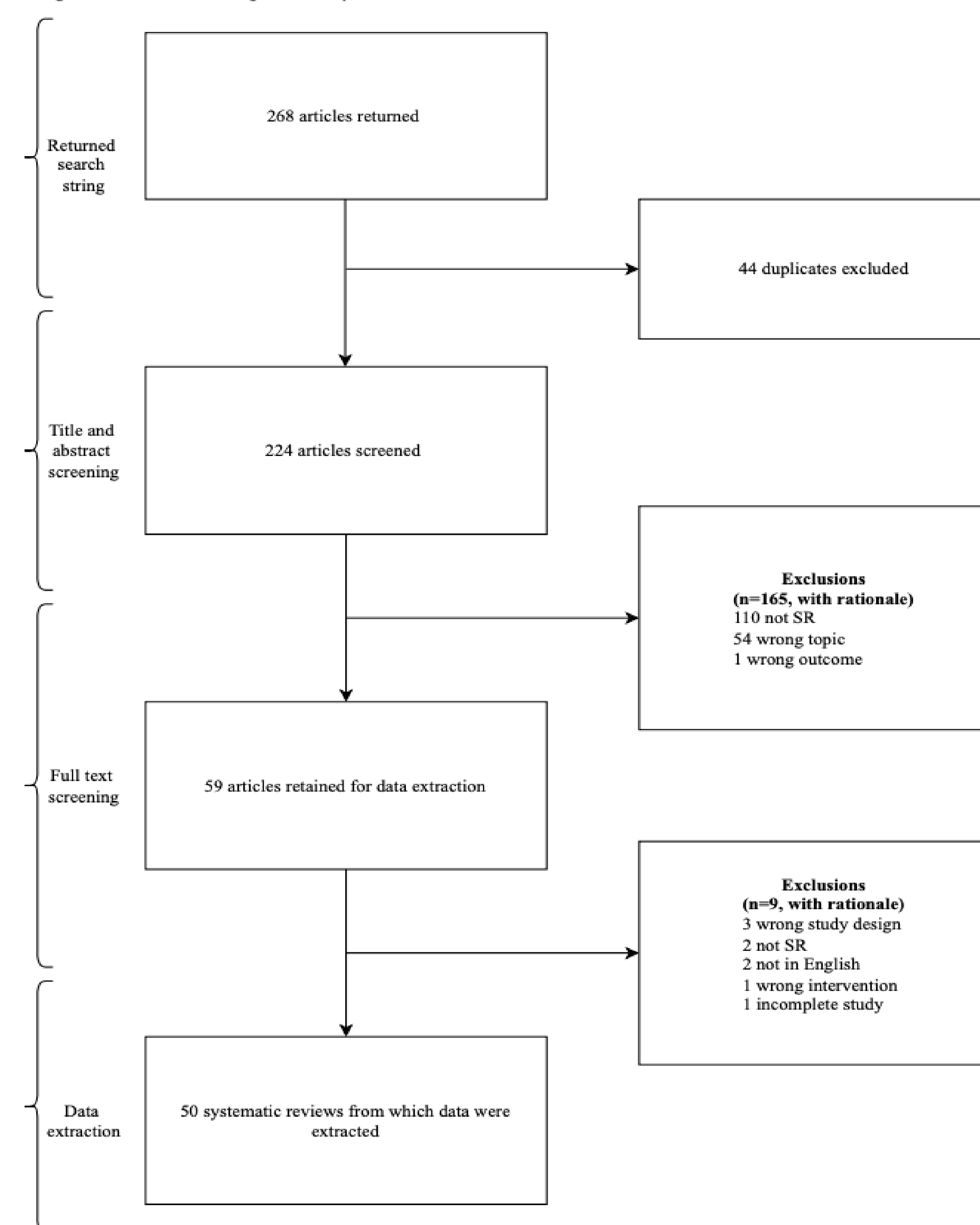
Table 1. Mahady assessment for completion of harms reporting (n=50)

Harms assessment	Frequency (%)	
	Yes	No
1. Are harms stated in title or abstract?	42 (84.0)	8 (16.0)
2. Are harms presented in the introduction?	40 (80.0)	10 (20.0)
3. Are harms listed and separately defined in the methods?	34 (68.0)	16 (32.0)
4. Are grades and/or severity scales used to classify harms in the methods?	6 (12.0)	44 (88.0)
5. Is there a method of harms data collection stated in the methods?	42 (84.0)	8 (16.0)
6. Is there a planned statistical analysis for harms stated in the methods?	34 (68.0)	12 (24.0)
7. Are the number of patients available for harms analyses stated in the results?	45 (90.0)	5 (10.0)
8. Are the number of treatment discontinuations in each arm reported in the results?	0 (0.0)	50 (100.0)
9. Are absolute figures for each harm in treatment and control groups presented in the results?	22 (44.0)	28 (56.0)
10. Were limitations of harms analyses discussed?	38 (76.0)	12 (24.0)
11. Is a balanced discussion of harms and benefits provided?	41 (82.0)	9 (18.0)
12. Did the authors discuss what future research would be needed to better clarify harms?	38 (76.0)	12 (24.0)
Total systematic reviews		
Completed 0% of harms items	0 (0)	
Completed 1-49% of harms items	4 (8.0)	
Completed 50% or more of items	46 (92.0)	

Table 2. Free Flap harms reported in pairs of reviews with Corrected Covered Area (CCA) $\geq 50\%$ (n = 1 pair of reviews)

Harms Reported	Dyad 832	Harms Reported	CCA
Mooney 2021 (n = 7 sources)		Jørgensenn 2019 = (n = 7 sources)	50% CCA
Recipient site infection		Debulking revisions	
Recipient site dehiscence		Length of hospital stay	
Donor site dehiscence		Donor site dehiscence	
Hematoma		Hematoma	
Total flap loss		Total flap loss	
Partial flap necrosis		Partial flap necrosis	
Percent Similarity: 66.0%			

Figure 1. PRISMA flow diagram of study selection



Conclusion

Our results show that, although harms are commonly reported among MFF SRs, improvement in descriptive language surrounding reported harms is necessary. Full transparency of reported harms in SRs is crucial as these studies inform clinical decision making. Additionally, future studies to develop and validate severity scales are essential to provide important context of specific harms related to MFF.

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