

Selective citation in trans fatty acid literature

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Questionable research practice: Selective Reporting

Publication bias

Outcome reporting bias

Citation bias



Selective citation

- Citations are a central part of knowledge development
- Because of the great amount of literature, only a selection of citations gets presented
- However, if citations get selected on the basis of study outcome, this can lead to bias



Citation Network Analyses

Which determinants influence the likelihood of being cited?

Industrially produced trans fatty acids and its effect on LDL- and HDL-cholesterol



Identify the network

- Systematic search in Web of Science – Core Collection
- 108 publications
 - 6 Observational studies
 - 36 Intervention studies
 - 9 Systematic reviews
 - 54 Narrative reviews
 - 3 Editorials



Potential determinants of selective citation

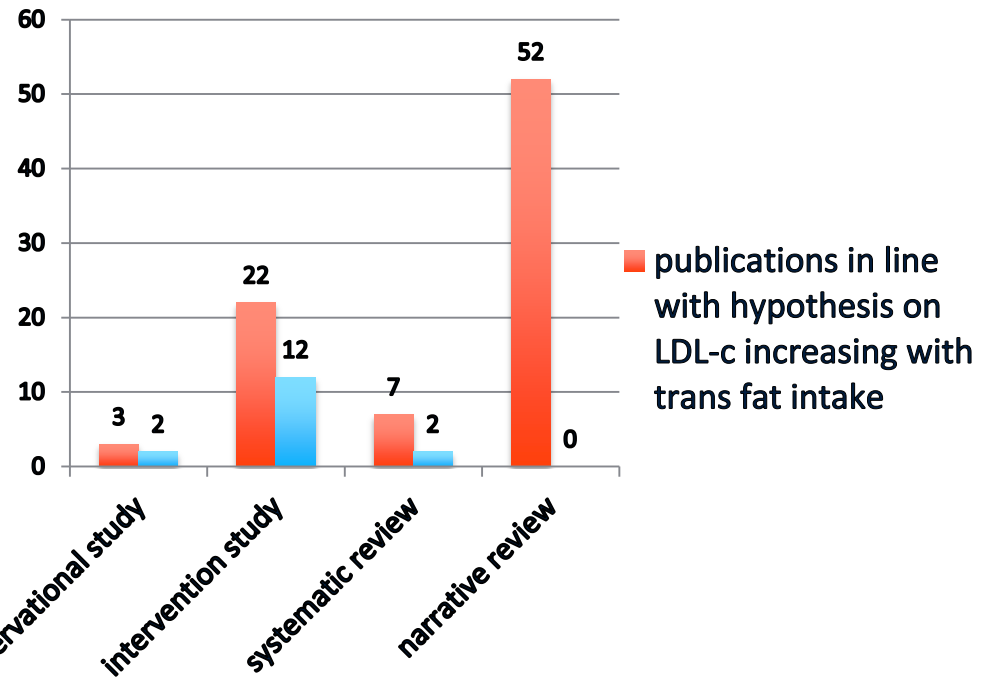
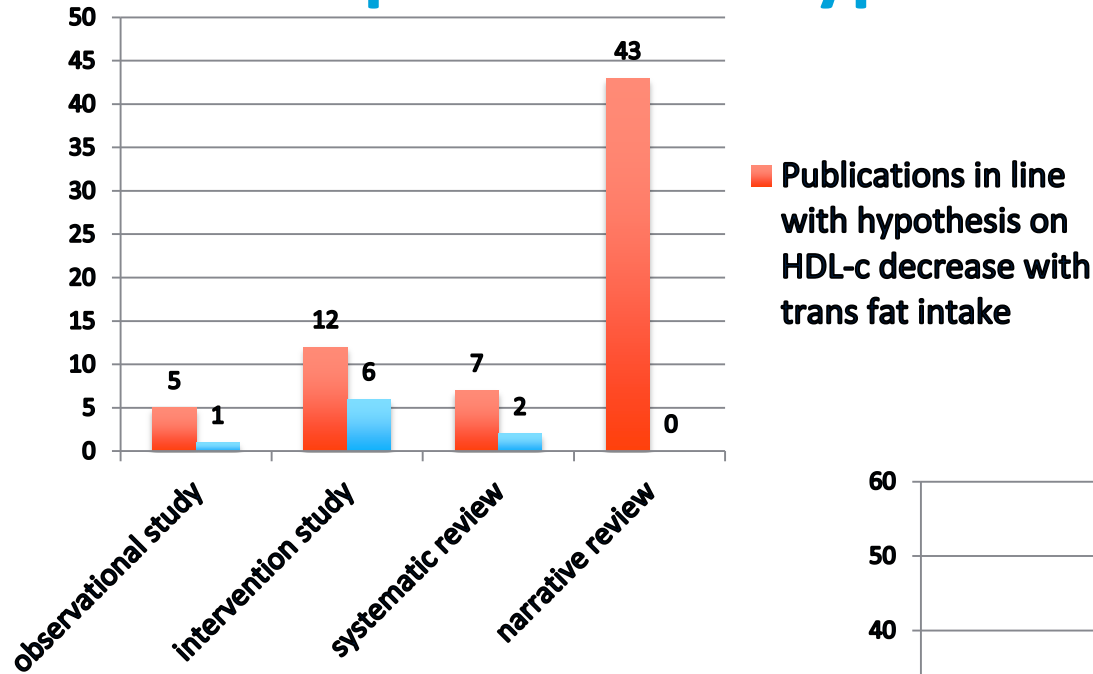
Justified determinants	Grey area	Unjustified determinants
Study quality	Study design	Study Outcome
	Sample size	
	Journal Impact Factor	
	Number of references	
	Country	
	Self-citation	
	Number of affiliations involved	
	Language	
	Authority of the author	
	Funding source	
	Gender	

Data analysis

- Unit of analysis: citation pathway
- Potential citation: a citation is possible to all available literature at the time of a new publication
- Compare the *potential* and *actual* citations via statistical analysis
- Network contains 5041 potential citations and 669 actual citations
- Random effect logistic regression with clustering on the citing publication is performed



Distribution of positive and negative studies over different publication types



Key Findings

Determinant	Categories	Adjusted OR
Significance LDL-c	Yes vs No	3.15 (2.4-4.2)
Significance HDL-c	Yes vs No	1.67 (1.3-2.1)
Hypothesis LDL-c	In line vs not in line	3.30 (2.6-4.2)
Hypothesis HDL-c	In line vs not in line	2.09 (1.6-2.8)
Sample size	1-40 vs 0 participants	7.05 (2.5 – 20.1)
	41 – 80 vs 0 participants	12.34 (4.3 – 35.5)
	> 80 vs 0 participants	3.38 (2.2 – 5.1)
Journal Impact Factor	2-4 vs <2	5.51 (3.6-8.3)
	>4 vs <2	10.88 (7.1-16.6)
Authority of the author	11–60 vs <10 citations in the network	2.70 (1.9 – 3.8)
	> 60 vs <10 citations in the network	5.06 (3.5 – 7.4)

Conclusion

- Citation bias exists in the trans fatty acid literature, as significant studies are three times more likely to be cited compared to non significant studies
- Also other factors, such as sample size, journal impact factor and authority of the author are determinants of selective citation
- Narrative reviews play a big role in this network. However, they give an overrepresentation of positive studies, which is not in line with the primary data



Thank you for your attention!

Questions?

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