the embassy of good science

Training for research integrity and research ethics: a scoping review

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Presentation by Ružica Tokalić, MD

Overview

1. **Background**

2. **What we did**

3. **What we found**

4. **What next?**

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Background

Background

- **Mapping Normative Frameworks of EThics and Integrity of Research (EnTIRE)**

- **H2020 project**

- **An online platform that makes the normative framework governing RE+RI easily accessible: Embassy of Good Science**

- **Support application in research and evaluation**

- **Involve all stakeholders in a participatory way**

Background

- **Collect materials on research ethics (RE) and research integrity (RI) committees, experts, and training opportunities**

- **Create Country Report Cards to synthesize information on structures, processes and outcomes for RE and RI**

Background

Real background

- **Misconduct**

- **~2% admit FFP, ~34% admit QRP[1]**

- **~14% perceived FFP in others, ~72% perceived QRP in others[1]**

- **Handling of one case ~525,000$[2]**

- **Estimated cost per ORI cases a year: > $110 million[2]**

- **Indirect damage?**

1. Fanelli D. How many scientists fabricate and falsify research? A systematic review and meta-analysis of survey data. PloS One 2009;4:e5738.
2. Michalek AM, Hutson AD, Wicher CP, Trump DL. The cost and underappreciated consequences of research misconduct: a case study. PLoS Medicine 2010;7:e1000318.

Background

Real background

- **Research ethics (RE): critical study of the moral problems associated with or that arise in the course of pursuing research[1]**

- **Research integrity (RI): the quality of possessing and steadfastly adhering to high moral principles and professional standards, as outlined by professional organizations, research institutions and, when relevant, the government and public[2]**

- **Responsible conduct of research (RCR): conducting research in ways that fulfill the professional responsibilities of researchers, as defined by their professional organizations, the institutions for which they work and, when relevant, the government and public[1]**

1. Steneck NH. Fostering integrity in research: definitions, current knowledge, and future directions. Sci Eng Ethics. 2006 Jan;12(1):53-74.
2. Office of Research Integrity (2005). Research on Research Integrity. Available at: http://grants1.nih.gov/grants/guide/rfa-files/RFA-NR-06-001.html.

Background

Real background

- **To counter these issues, a lot of expectation has been put onto training in RE and RI**

- **There is limited evidence for its effectiveness[1]**

- **In this scoping review, we aimed to assess the current state of education and training of RE, RI, and RCR in different research areas**

1. Marusic A, Wager E, Utrobicic A, Rothstein HR, Sambunjak D. Interventions to prevent misconduct and promote integrity in research and publication. Cochrane Database of Systematic Reviews 2016, Issue 4. Art. No.: MR000038.

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What we did

What we did

Methods

- **Joanna Briggs methodology for scoping reviews[1]**

- **A protocol and a search strategy were developed in collaboration with a librarian experienced in systematic reviews**

- **A systematic search of databases PubMed, Scopus, and Web of Science, as well as RRI Tools, Netherlands Research Integrity Network, and grey literature (base-search.net, opengrey.org, science.gov) for training opportunities**

1. Peters MD, Godfrey CM, Khalil H, McInerney P, Parker D, Soares CB. Guidance for conducting systematic scoping reviews. Int J Evid Based Healthc. 2015 Sep;13(3):141-6.

What we did

- **Publications considered relevant for inclusion were journal articles which describe and/or evaluate interventions aimed at improvement of RE and RI attitudes and/or behaviour**

- **We considered any kind of course, face-to-face or online, methodological approach or a model aimed at improving RE and RI practices to be an intervention**

- **Published after 1980**

- **No language, geographical or limitations for intervention, participants regarding their levels of education, and areas of research**
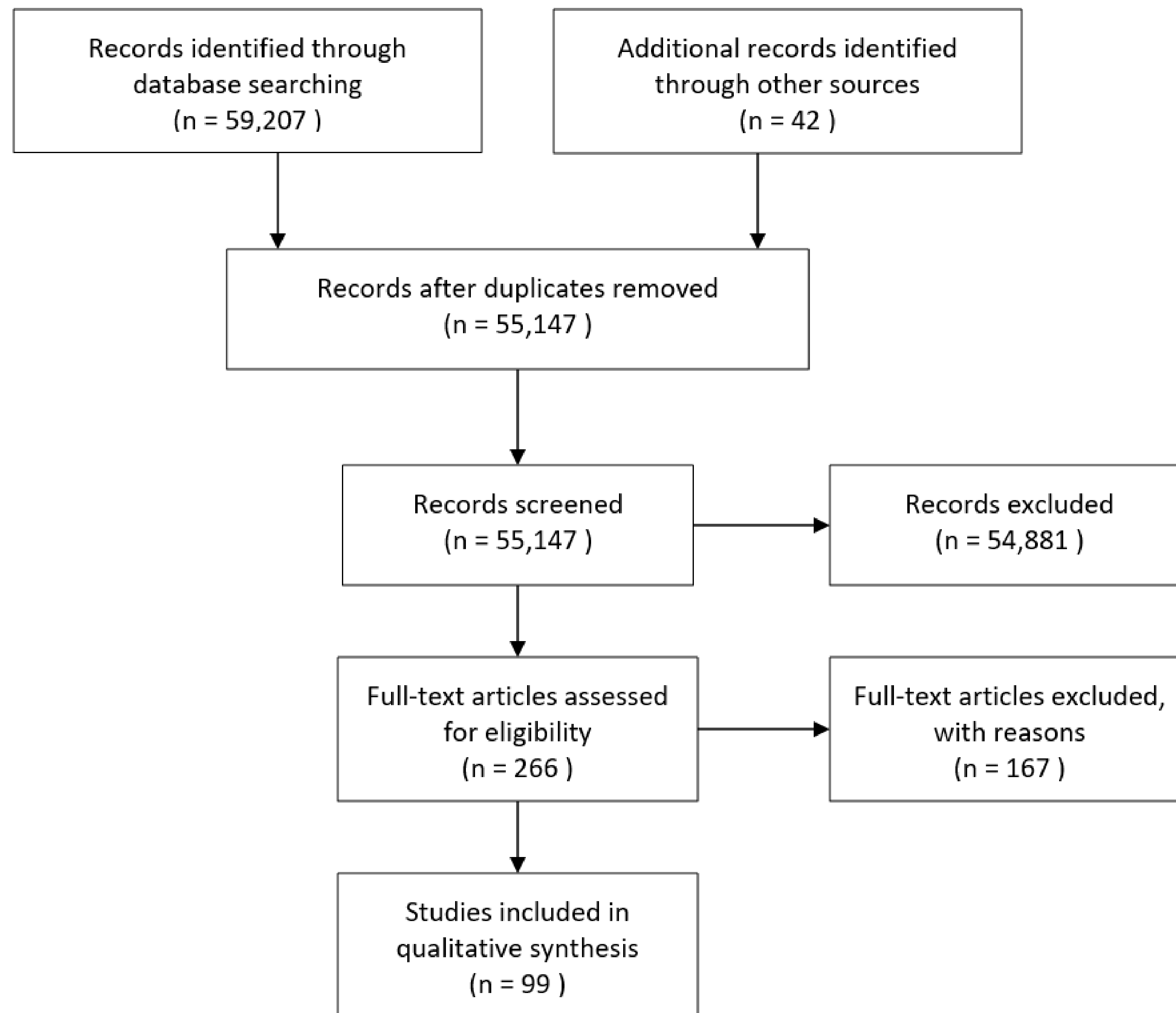
What we did

Data extraction

- Authors, country of origin, year of publication

- Research area, target population

- Focus on RE or RI or RCR, RE/RI topics addressed

- Methods, sample size, educational approach, delivery mode and duration

- Outcome assessment, key findings, identified gaps and availability of materials

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What we found

What we found

What we found

Results?

	Count (%)
Country of development	US 69 (69.7%)
	Europe 10 (10.1%)
	Australia 5 (5.1%)
	South Korea 3 (3.0%)
	India 3 (3.0%)
	Canada 2 (2.0%)
	Egypt 1 (1%)
	Peru 1 (1%)
	South Africa 1 (1%)
	Singapore 1 (1%)
	Bolivia 1 (1%)
	Cuba 1 (1%)
	China 1 (1%)
	Brasil 1 (1%)
Time of publication	>2009 69 (69.7%)
	1999-2008 22 (22.2%)
	<1998 8 (8.1%)

What we found

Results?

	Count(%)
Research area	Biomedicine and health 41 (41.4%)
	Social sciences 15 (15.2%)
	Engineering and technology 13 (13.1%)
	Multidisciplinary 11 (11.1%)
	Natural sciences 6 (6.1%)
Target audience	Only students 54 (54.5%)
	Only trainers 14 (14.14%)
	Mixed audience 9 (9.1%)
RE, RI, RCR	RE 59 (59.6%)
	RI 5 (5.1%)
	RCR 25 (25.3%)
	RE+RI 3 (3.0%)
	RE+RCR 3 (3.0%)
	RI+RCR 0 (0.0%)

Wordcloud of the topics covered in the educational interventions

What we found

- **Educational approach: majority of the interventions were face to face, and included case studies, role-play and scenarios, in combination with lectures, in duration of 1 week or less**

- **Less frequent: blended learning, cards, fish bowl technique, group and peer mentoring**

What we found

- **Measured outcomes: from essay based evaluations, knowledge tests and formative evaluation, to surveys analysing satisfaction with the course**

- **Diverse outcomes, no standardized measurements**

- **Key findings: interventions mostly had positive evaluation results, but emphasized the need for better defined goals of RE and RI education and objective, structured ways of evaluation and follow up**

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What next?

What we found

Summary

- **Focus on RE and RCR**

- **Very few consider the concepts of RI, despite the 2014 Singapore Statement on Research Integrity**

- **Traditional lectures remain a big part of the course designs**

- **More focus is being put on less traditional topics, such as time management and poor communication**

DuBois JM, Chibnall JT, Tait R, Vander Wal JS. The Professionalism and Integrity in Research Program: Description and Preliminary Outcomes. Acad Med. 2018 Apr;93(4):586-592.

What next?

- **Lack of comprehensive and measurable outcomes**

- **Difficult to assess how should an effective education in RE/RI/RCR look, and if it can perform in terms of misconduct prevention**

- **Future research and education should focus on clear outcomes and sustainable ways of measuring them**

Thank you!
Any questions?

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