Forensic Science and Wrongful Convictions in Canada

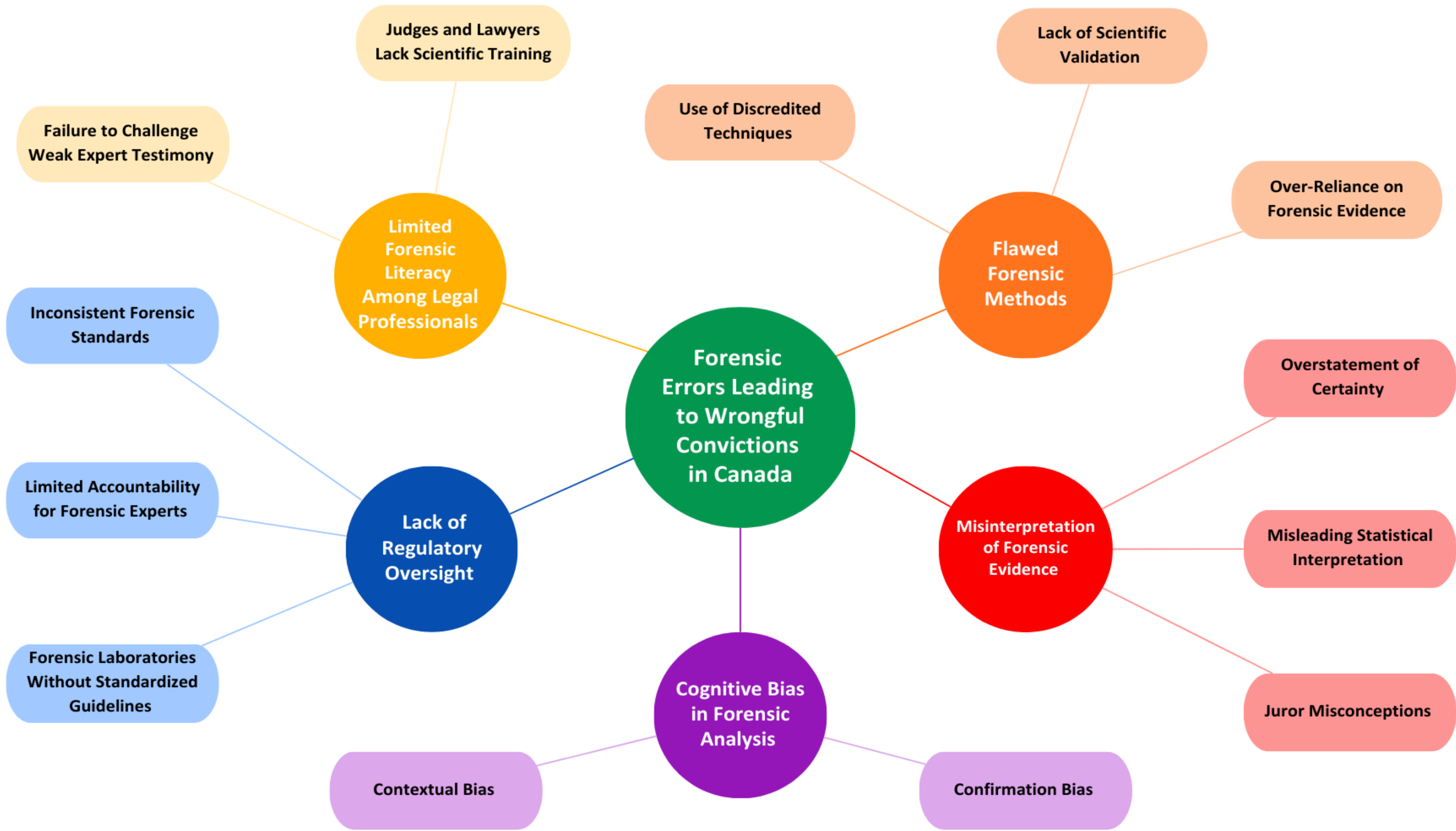Ancy Maria Herbert

Introduction

Forensic science is crucial in criminal investigations, but issues with the reliability and interpretation of forensic evidence, especially in wrongful convictions, persist. In Canada, flawed forensic examinations and the misapplication of forensic findings, coupled with doubts about their credibility, contribute to wrongful convictions (Cunliffe & Edmond, 2021). This study addresses the research question: 'How can forensic analysis errors and legal misinterpretations cause wrongful convictions in Canada, and what reforms would enhance the reliability of forensic evidence?' This study identifies key deficiencies and proposes reforms to improve the reliability of forensic evidence in Canada.

Background

Flaws in forensic science, such as over-reliance on unvalidated methods, expert bias, and misuse of forensic evidence, have contributed to high-profile wrongful convictions in Canada, including those of Donald Marshall Jr., Guy Paul Morin, and David Milgaard. Methodological defects and misrepresented forensic evidence, compounded by inadequate legal training and unclear admissibility standards, have contributed to these miscarriages of justice (Mason, 2020). These issues highlight the need for reforms in forensic practice and legal literacy to prevent the continued use of questionable forensic techniques in the Canadian justice system.

Methods

This research takes a pragmatic approach to wrongful convictions in Canada, focusing on forensic advancements and legal reforms. This study uses secondary research to analyze case studies, academic literature, and forensic reports from sources like the JIBC Library and Google Scholar. The search includes peer-reviewed literature from 2000 onward while excluding non-peer-reviewed sources and unrelated legal reforms, except for key cases like Guy Paul Morin and David Milgaard. From sixteen initially selected articles, nine were fully reviewed, focusing on forensic errors, DNA testing, and regulatory oversight. Ethical considerations ensure transparency, objectivity, and respect for those affected by wrongful convictions.

Discussion

This research on forensic errors and legal misinterpretations in Canada has both strengths and weaknesses. Strengths include a thorough secondary research approach, interdisciplinary insights into cognitive biases, and real-life case analyses that enhance credibility. However, reliance on secondary data and U.S.-based forensic literature limits its applicability to Canada's legal system, as it lacks firsthand empirical insights. It also offers limited coverage of emerging forensic technologies. Limitations include the lack of a centralized Canadian wrongful conviction database and a restricted timeframe, which may limit deeper analysis. Future research should include expert interviews and focus on evolving forensic methodologies.

Results/Findings

Figure 1. *Overview of Major Themes*

Recommendations

Preventing wrongful convictions in Canada requires systemic reforms in forensic data collection, emerging technologies, interdisciplinary collaboration, and legal education. Establishing a national wrongful conviction database would track forensic errors and inform policy changes. Emerging technologies like probabilistic genotyping and AI-driven analysis must be validated for legal use to ensure accuracy and fairness in forensic investigations (MacFarlane, 2014). Judicial training in forensic interpretation and interdisciplinary collaboration between scientists and legal professionals are essential. A national oversight body should standardize forensic methodologies and ensure validation before courtroom use. Additionally, defense counsel must have equal access to forensic experts to prevent wrongful convictions, ensuring balanced representation in legal proceedings (Hamer & Edmond, 2019). Increased funding for forensic research and training programs would further enhance the reliability of forensic evidence. Implementing these reforms would strengthen forensic science and justice outcomes in Canada.

References

Cunliffe, E., & Edmond, G. (2021). Justice without science? Judging the reliability of forensic science in Canada. *Canadian Bar Review, 99*(1), 65–112.
https://cbr.cba.org/index.php/cbr/article/view/4659/4494

Hamer, D., & Edmond, G. (2019). Forensic science evidence, wrongful convictions and adversarial process. *University of Queensland Law Journal, 38*(2), 185–236.
https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3494630

MacFarlane, B. A. (2014). Wrongful convictions: Determining culpability when the sand keeps shifting. *UBC Law Review, 47*(2), 597-672.
https://commons.allard.ubc.ca/ubclawreview/vol47/iss2/9/

Mason, R. (2020, September 23). *Wrongful convictions in Canada*. Library of Parliament.
https://lop.parl.ca/sites/PublicWebsite/default/en_CA/ResearchPublications/202077E