

Medicolegal Death Investigator Workplace Safety Hazards: A Scoping Review of the Literature

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Abstract

To better understand occupational safety and health risks among MLDI, a scoping review was conducted.

Two independent researchers used Covidence software to identify relevant study citations by screening the title and abstract, excluding studies that dealt exclusively with occupational safety issues exclusive to law enforcement, firefighters or emergency medical technicians. Of the 7, 5 (71.4%) utilized survey design, 1 (14.3%) was a systematic review, and 1 (14.3%) was a quasi-experimental. Of the seven articles, four (57.7%) addressed the emotional or mental health well-being of medical examiner and coroner office employees which included MLDIs. Three articles addressed occupational safety due to infectious disease, with two (28.6%) specifically addressing the forensic pathologist role, and one (14.3%) infectious disease safety among 'death workers' in general.

This pilot scoping review support the need to fill a gap in the literature addressing occupational safety of MLDIs. These results serve as an initial step toward a more intensive investigation of workplace safety for MLDIs.

Introduction

- MLDIs are responsible for investigating sudden unexpected deaths and contain a variety of titles such as coroner, medical examiner, medicolegal death investigator or death investigator.
- MLDIs respond to over 500,000 deaths annually and are exposed to occupational risks likely to result in injury or illness¹².
- There are no mandated guidelines or sources of education/training across jurisdictions and states⁸.

Introduction

- Hazardous job exposures without the proper preparation leads to illness and injury which can result in disabilities, absenteeism, and staff turnover.
- To our knowledge, there are limited studies addressing such risks in MLDI and therefore the purpose of this presentation is to conduct a scoping review.

Methods

- Frameworks proposed by Arksey and O'Malley¹ and Joanna Briggs Institute¹⁰ for critical appraisal were used to guide the scoping review.
- The steps included: 1.) Propose the Question, 2.) Identify Relevant Studies, 3.) Select Eligible Studies, 4.) Document the evidence Selected, and 5.) Summarize the Results.
- The proposed question was, "What are the prevalent occupational safety risks and health-related conditions contributing to MLDI injury, disability and death?"
- Population included MLDIs in the context of death investigations excluding disasters.
- Concept included the daily or routine workplace health or safety hazard risks encountered during a daily or routine shift of a MLDI.
- See Table 1 for inclusion and exclusion criteria and Table 2 outlines the search terms used for Medline Complete (Ebsco).

Table 1: Inclusion and Exclusion Criteria

Criterion	Inclusion	Exclusion
Time period	2000 - 2020	Prior to 1999
Language	English studies	Non-English studies
Type of article	Original research, published in peer review journal	Articles that were not peer reviewed or original research
Study focus	Death investigators employed in setting of medical examiner or coroner office. Participants in studies addressing occupational health and safety.	All other 'death workers', first responders and employment settings.
Literature focus	Articles where the overwhelming theme relates to occupational health and safety of MLDIs.	Articles that made a reference to death investigation health and safety considerations Articles that were guidelines, recommendations, editorials, discussion or personal opinion pieces.
Population and sample	MLDIs employed in settings of medical examiner or coroner office.	All other occupations not involved in death investigation or involved in disasters.

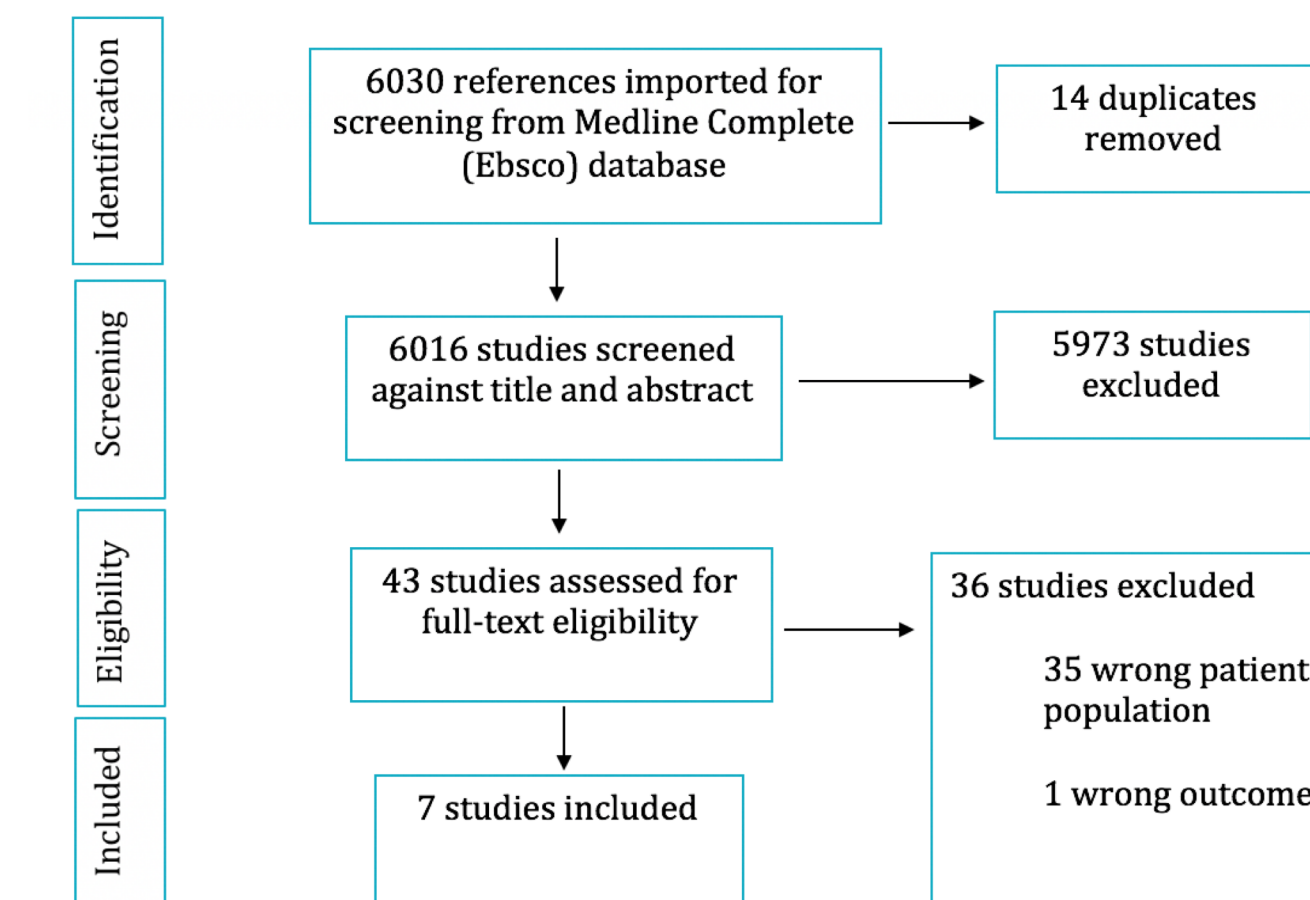
Table 2: Medline Complete (Ebsco) search terms

Number of Articles Retrieved	6,016
Date Retrieved	7/17/2020
Limiters	Years 2000 - 2020, English, academic, journals only
Search Terms	((MH "Coroners and Medical Examiners") OR (MH "Police")) OR AB (scene responder* or coroners or medical examiner* or police or ((forensic or medicolegal or death) n1 investigat*)) OR TI (scene responder* or coroners or medical examiner* or police or ((forensic or medicolegal or death) n1 investigat*)) AND ((MH "Occupational Stress+") OR (MH "Stress, Physiological+") OR (MH "Stress, Psychological+") OR (MH "Occupational Diseases+") OR (MH "Occupational Injuries+") OR (MH "Occupational Exposure+") OR (MH "Occupational Health") OR (MH "Wounds and Injuries+") OR (MH "Accidents+") OR (MH "Accidents, Traffic")) OR TI (hazard* or injury or injuries or coping or safety or ptsd or occupational stress or workplace stress or job stress) OR AB (hazard* or injury or injuries or coping or safety or ptsd or occupational stress or workplace stress or job stress)

Results

- From the database Medline Complete (Ebsco)
- Over 6,000 articles were included and after full review and evaluation of 43 studies seven met the inclusion criteria based on the established criterion field of interest, exposures and outcomes. (Figure 1)
- Articles were in the formats of survey design (5 articles), systematic reviews (1 article) and quasi-experimental (1 article).
- Two primary hazards identified were emotional health impacts and exposure to infectious diseases.

Figure 1: Flow Diagram of PRISMA Data



- Critical appraisal was carried out by two independent researchers using the Joanna Briggs Institute guidelines. The results; are presented in Table 3.

Table 3: Critical Appraisal Results

Surveys (n=5)	Yes Count (%)
Inclusion clearly defined	5 (100%)
Subjects and the setting described	4 (80.0%)
Exposure measures valid and reliable	4 (80.0%)
Objective/ standard criteria used for measurement of the condition	4 (80.0%)
Confounding factors identified	2 (40%)
Strategies for confounders	2 (40%)
Outcomes measured in a valid and reliable way	5 (80.0%)
Appropriate statistical analysis	4 (80.0%)
Systematic reviews (n=1)	
Is the review question clearly and explicitly stated	0 (0%)
Were the inclusion criteria appropriate for the review question	0 (0%)
Were the sources and resources used to search for studies adequate	0 (0%)
Were the criteria for appraising studies appropriate	0 (0%)
Was critical appraisal conducted by two or more reviewers adequately	0 (0%)
Were there methods to minimize errors in data extraction	0 (0%)
Were the methods used to combine studies appropriate	0 (0%)
Was the likelihood of publication bias assessed	0 (0%)
Were recommendations for policy and/or practice supported by the reported data	0 (0%)
Were the specific directives for new research appropriate	0 (0%)
Quasi experimental (n=1)	
Is the 'cause' and 'effect' clearly presented	1(100%)
Were the participants included in any comparisons similar	NA
Were the participants included in any comparisons	NA
Was there a control group	NA
Were there multiple measurements of the outcome both pre and post the intervention/exposure	1(100%)
Was follow up complete	1(100%)
Were the outcomes of participants included in any comparisons measured in the same way	NA
Outcomes measured in a reliable way	1(100%)
Appropriate statistical analysis used	1(100%)

Discussion

- Only seven articles met the criteria regarding appropriate target population, exposures, and outcomes.
- This emphasizes that our target population, MLDIs, are an understudied group.
- In general, MLDIs are often placed into a larger subset of forensic practitioners or medical examiner personnel.
- The implications of the seven studies identified did not directly address MLDIs work place health and safety making application or translation of the findings difficult.

Conclusion

- Additional and higher quality research must be performed for addressing workplace safety and health of this high-risk population.
- Case studies addressing MLDIs are encouraged as a starting point.

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