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REVIEW ARTICLE

Front-line health professionals' recognition and responses to nonfatal strangulation events: An integrative review

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Abstract

Aim: The aim of this study was to determine how front-line health professionals identify and manage nonfatal strangulation events.

Design: Integrative review with narrative synthesis was conducted.

Data Sources: A comprehensive database search was conducted in six electronic databases (CINAHL, Wed of Science, DISCOVER, SCOPUS, PubMed and Scholar) resulting in 49 potentially eligible full texts, reduced to 10 articles for inclusion after exclusion criteria were applied.

Review Methods: An integrative review was undertaken in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement guidelines. Data were extracted, and a narrative synthesis using Whittemore and Knafl (2005) framework was undertaken to determine how front-line health professionals identify and manage nonfatal strangulation events.

Results: The findings identified three main themes: an overall failure by health professionals to recognize nonfatal strangulation, a failure to report the event and a failure to follow up on victims after the event. Stigma and predetermined beliefs around nonfatal strangulation, along with a lack of knowledge about signs and symptoms, were the salient features in the literature.

Conclusion: Lack of training and fear of not knowing what to do next are barriers to providing care to victims of strangulation. Failure to detect, manage and support victims will continue the cycle of harm through the long-term health effects of strangulation. Early detection and management of strangulation are essential to prevent health complications, particularly when the victims are exposed to such behaviours repeatedly.

Impact: This review appears to be the first to explore how health professionals identify and manage nonfatal strangulation. It identified the significant need for education and robust and consistent screening and discharge policies to assist health providers of services where victims of nonfatal strangulation attend.

No Patient or Public Contribution: This review contains no patient or public contribution since it was examining health professionals' knowledge of identifying nonfatal strangulation and the screening and assessment tools used in clinical practice.

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KEYWORDS
choking, integrated review, intimate partner violence, nonfatal strangulation, nurse, nursing, professional dangerousness

1 | INTRODUCTION

Nonfatal strangulation (NFS) is a serious, violent form of intimate partner violence (IPV) and is an important indicator of severity in which the victim is at elevated risk for future homicide (Edwards & Douglas, 2021). It often occurs in the context of an intimate relationship characterized by ongoing violence (Bradbury-Jones & Taylor, 2013). NFS has also been conceptualized as a tactic of coercive control, as the perpetrator can induce fear and compliance by sending the message to the victim that they are able to kill them (Thomas et al., 2014). NFS can be experienced multiple times by a victim across their lifetime (Edwards & Douglas, 2021). Strangulation injuries occur when external forces are applied to the neck leading to occlusion of airways, arteries and veins. If the force is long enough and severe enough, asphyxia and reduced cerebral perfusion can lead to brain damage and if prolonged, death (Bichard et al., 2021). Evidence indicates up to 17% of those strangled lose consciousness, indicating at least a mild transient brain injury (TBI) and is also suggestive of repeated injuries which shows half of survivors reporting being strangled between three and 20 times in their lifetime (Wilbur et al., 2001).

This review was undertaken to determine health professionals' knowledge and understanding of signs, symptoms, consequences and psychological impacts of nonfatal strangulation (NFS) on the victim. The need to undertake the study in which this review was undertaken arose from the realization that nurses working in trauma-related health services were not considering NFS in the face of increasing intimate partner and family violence known to be occurring in Australian and New Zealand communities. NFS in IPV or family violence is not unique to these two countries either, with the World Health Organization (WHO) identifying that across all countries, 61% of all IPV is physically abusive, with victims of such violence probably to report significantly poor physical and mental health problems at a rate twice as much as women not exposed to IPV (World Health Organization, 2012). Moreover, one in five females of IPV threaten or attempt suicide in their lifetimes, which is significantly higher than in the rest of the population (Afifi et al., 2009).

2 | BACKGROUND

Globally, NFS has emerged as a silent epidemic, made increasingly more prevalent because of the global COVID-19 pandemic (Boserup et al., 2020; Taliaferro et al., 2001). Women are predominantly the victims of NFS, although men are not excluded. In the United States, 9.7% of women reported an incident of strangulation by an intimate partner in their lifetime (Black et al., 2011), compared with 18.9% in the United Kingdom (White et al., 2021), and 7.4% in Australia where almost 60% of sexual assaults involved NFS by an intimate partner (Zilkens et al., 2016). We know family violence increases with deprivation, and indigenous populations experience poverty at much greater rates. Current data show that in Australia and New Zealand, one in three women will experience physical or sexual violence during their lifetime and this increases with Indigenous women to as high as one in two (58%) in their lifetime (Zilkens et al., 2016). In New Zealand, strangulation became a criminal offence in December 2018, and since then, an average of five people per day have been charged, signifying the extent of the problem (Edwards & Douglas, 2021).

Detection of strangulation can be challenging for healthcare professionals as the physical signs and symptoms are not always obvious and can easily be missed (Messing et al., 2018; Strack et al., 2001). Injury can occur with as little as 1.9 kgs pressure on the jugular vein (less than opening a can of drink), up to 4.9 kg on carotid arteries and up to 30 kg for vertebral arteries (Bichard et al., 2021). Research shows that 50 per cent of victims who have been strangled do not have any visible injuries (Strack et al., 2001), and it is estimated that only 20% of all family violence is reported (Wilson, 2016). Furthermore, survivors often do not seek care or do not report strangulation due to a variety of reasons, for example fear of the consequences, stigma related to sexual taboos, shame about what others might think, cultural norms that prevent reporting and threats to safety by the abuser (Lawson, 2012). For survivors, they underestimate, or do not know the clinical danger and long-term consequences of the situation in not reporting such injuries (Messing et al., 2018).

Despite increased vulnerability and health consequences for victims, there is a lack of literature around health professionals identifying, screening and assessing NFS. This makes it difficult to ascertain the true incidence and prevalence of NFS, and therefore creates barriers to (or support for) screening and assessment by health professionals who care for these victims. Even if victims do present to healthcare professionals, there is limited screening and assessment tools available, leaving vulnerable populations disadvantaged (Messing et al., 2018; Strack et al., 2001). Moreover, appropriate holistic assessment in terms of equity in care management and with that, the cultural understanding to support them, is absent. The lack of effective assessment of NFS further isolates women and children who hesitate to reveal their needs for fear of retribution or further marginalization (Edwards & Douglas, 2021; Messing et al., 2018; Strack et al., 2001). In these cases, health professionals may see them as not wanting help, leading to miscommunication and misunderstanding of the problem that perpetuates victims' exposure to ongoing abuse, physical and emotional danger, and increased risk of adverse outcomes (Monahan et al., 2020; Patch et al., 2021). The WHO recommends training health professionals for increased

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surveillance and assessment, including recognition of risk factors (such as NFS history), as among the best approaches to ending IPV homicide (World Health Organization, 2012). First responders, health professionals, government policy makers and researchers, therefore, hold a pivotal role in addressing and responding to NFS, its identification in the first instance. Without adequate assessment protocols and treatment processes, advocacy and support for victims is missed.

3 | THE REVIEW

3.1 | Aim

The context of the review was to explore health professionals' understanding of the signs and symptoms (both long and short term) of NFS, the assessment tools used and treatment given to patients who have experienced NFS in the context of IPV or sexual assault. The focus for the review was on those health professionals who were first to assess a victim of NFS. This includes general practitioners, primary healthcare nurses, emergency department (ED) staff and paramedics.

Therefore, this review was undertaken to determine how front-line health professionals identify and manage nonfatal strangulation events.

3.2 | Design

An integrative review with narrative synthesis was performed. Integrative reviews are a specific approach to searching the literature that allows for empirical and theoretical literature to be explored around a topic that may be relatively unknown or where there is a health problem that needs to be explored in more detail. It allows for the inclusion of a diverse range of methodologies that include experimental and nonexperimental research (Whittemore & Knafl, 2005). Additionally, integrative reviews allow researchers to define concepts, review theories and to systematically review all the evidence related to the phenomenon under scrutiny (Whittemore & Knafl, 2005). This review was carried out using the Whittemore and Knafl (2005) framework which provides a robust, systematic process of identification, search strategies, evaluation and synthesis of information and integration of findings. The protocol for the search was registered with the National Institute for Health Research's prospective register of systematic reviews (PROSPERO), Reference CRD42021260414.

3.3 | Search methods

Although Whittemore & Knafl, (2005) support the use of both empirical and nonempirical literature, we chose to use empirical, peer-reviewed literature for this review, the analysis of which was focused on the narrative contained in the articles to extract information pertaining to views and understanding of NFS by health professionals. The review question was identified as follows: How do front-line health professionals identify and manage nonfatal strangulation events? The review question was kept broad enough to identify all aspects of health professionals' knowledge and any assessment tools used when caring for patients who have experienced NFS.

The process of the search was documented using the updated Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement guidelines (Page et al., 2021). The inclusion and exclusion criteria are provided in Table 1.

3.4 | Search strategy

Six electronic databases (CINAHL, Wed of Science, DISCOVER, SCOPUS, PubMed and Scholar) were searched between August 2021 and December 2021. The Discover search engine covers a wide range of multidisciplinary health databases, including CINAHL, PubMed, Web of Science and PsycINFO.

The initial search consisted of articles published in the years of 2000–2022 and the following search terms: Nonfatal (nonfatal; nonfatal) strangulation, postural strangulation, choking, breath play, throttle, ligature, garrot, Intimate partner violence, domestic

TABLE 1 Inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
• Peer-reviewed articles • Articles in English • Nonfatal strangulation in either family and sexual violence • Articles between 2000 and 2022 • Frontline/first responders professionals, that is emergency staff, paramedics, general/family practitioners, nurses and midwives • Studies which refer to nonfatal strangulation pathological, neurological, cognitive, psychological and behavioural signs and symptoms • Countries: New Zealand, Australia, Canada, United Kingdom, Scandinavian countries and the United States of America	• Nonpeer-reviewed articles • Articles not in English • Articles earlier than 2000 • Health professionals not working in the front-line of domestic violence • General violence not limited to strangulation, and strangulation not separated from other forms of violence or fatal strangulation • Not focused on human, or self-inflicted, that is suicide, auto-erotic asphyxia. • Focused on the perpetrator or nonclinical focus such as Family, friends or nonhealth professionals • Grey Literature • All countries not identified as included

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violence, coercive control, partner abuse, spousal abuse, sexual assault, intimate terrorism, brain injury, brain damage, hypoxia, asphyxia, anoxia, neurological, mental health, health professionals, front-line health professionals, emergency personnel and health services. The search terms were amended to each of the individual databases to suit the requirements of the database parameters.

3.5 | Search outcome

Each author searched one database except for Author 1 who searched two databases. All records identified in the search were uploaded into EndNote X20 (Clarivate Analytics). Titles and abstracts were screened by each reviewer against the inclusion criteria for the review. Potentially relevant papers were retrieved in full and assessed against the inclusion criteria. To prevent bias, full text of all included papers was downloaded, read and re-read by all members of the project team individually. Disagreements were resolved and consensus reached through discussion.

A total of 1720 studies were reviewed in total, resulting in 49 potentially eligible full texts, reduced to 10 articles for inclusion after duplicates were removed and exclusion criteria were applied (Figure 1).

3.6 | Quality appraisal

The included studies were critically appraised independently by two reviewers (Author 1 and Author 4) to determine final inclusion. The formal critical appraisal tools used in this review included Critical Appraisal Skills Programme [CASP] (CASP, 2022) and Consolidated Criteria for Reporting Qualitative Research [COREQ] (Tong et al., 2007). Whittemore and Knafl (2005) note that quality appraisal of literature does not have a defined standard. Determination of each study's quality is subjective, and final quality grades were determined by the reviewers with the critical appraisal tools to assist. All articles included reached the minimum acceptable quality to be included in the review.

3.7 | Data abstraction

The review's focus was narrative and reflected the descriptive nature of the studies identified in the search. Data findings of all included articles for final review were documented by two authors (Author 1 and Author 2) on a data summary sheet as recommended by Whittemore and Knafl (2005). All co-authors then reviewed the full articles and in cases of data disagreement on findings, the relevant factors were discussed among the authors. Data from the summary sheet was then synthesized using a categorization system. This system was developed based on the research question. It was used to openly categorize data by revealing themes in the articles (Whittemore & Knafl, 2005). We identified three themes that structured our results section.

3.8 | Synthesis

All final papers reviewed were published between 2017 and 2021 and conducted across three countries: Finland, the USA and Canada, with the USA being the main contributor. Of note is that much of the literature relating to NFS is from 2017 onwards. This is despite the time limits on the search being 2000 to current 2022 and may indicate the comparatively recent and increasing awareness of NFS and the need for health professionals to incorporate it into their considerations when assessing and diagnosing victims.

There were no studies of randomized population groups as populations were identified through contact with healthcare services and were focused on self-selected, domestic violence shelters or case studies that rely on existing measures from existing medical records (such as patient files). Three of the papers were literature reviews, five were quantitative studies, the main data collection techniques were case reviews via medical records, and two were qualitative studies. In the qualitative studies, the main data collection technique was case records and interviews. There were two research papers (Jacob et al., 2020; MacDonald et al., 2021) that were common to the existing literature reviews and this review. However, it is appropriate to include each of these as part of our review process as they pertain to our research question. That is, their contribution to our review is distinct. Table 2. provides an overview of the final review papers.

Three themes were apparent in the literature: failure to recognize, failure to report, and failure to follow up. Subthemes of stigma and normalization and were also identified. Each of the themes is discussed in more detail in the following section. A commonality identified across all reviewed papers was system failures, demonstrating that despite increasing awareness of the importance of nonfatal strangulation as a predictor of more serious outcomes, it remains under-reported.

4 | RESULTS

4.1 | Failure to recognize

The theme of failure to recognize was overwhelmingly identified across the reviewed literature, described by some authors across the continuum of care (McKee et al., 2020; Monahan et al., 2020). That is, diagnosis of NFS on ED presentation may be hindered by the presence of other significant injuries requiring intervention (Jacob et al., 2020; Kivelä et al., 2019; MacDonald et al., 2021; Stellpflug et al., 2022) and subsequent assessment for effects of NFS is not often reported, due in some way to the failure to follow up explained as the third theme in this review findings.

Furthermore, the papers in this review all reported the importance of accurate recognition and documentation of NFS. Health professionals were not able to make the links between the victim's signs and symptoms and the opportunity of nonfatal strangulation. This failure to identify NFS signals the beginning of failure to manage

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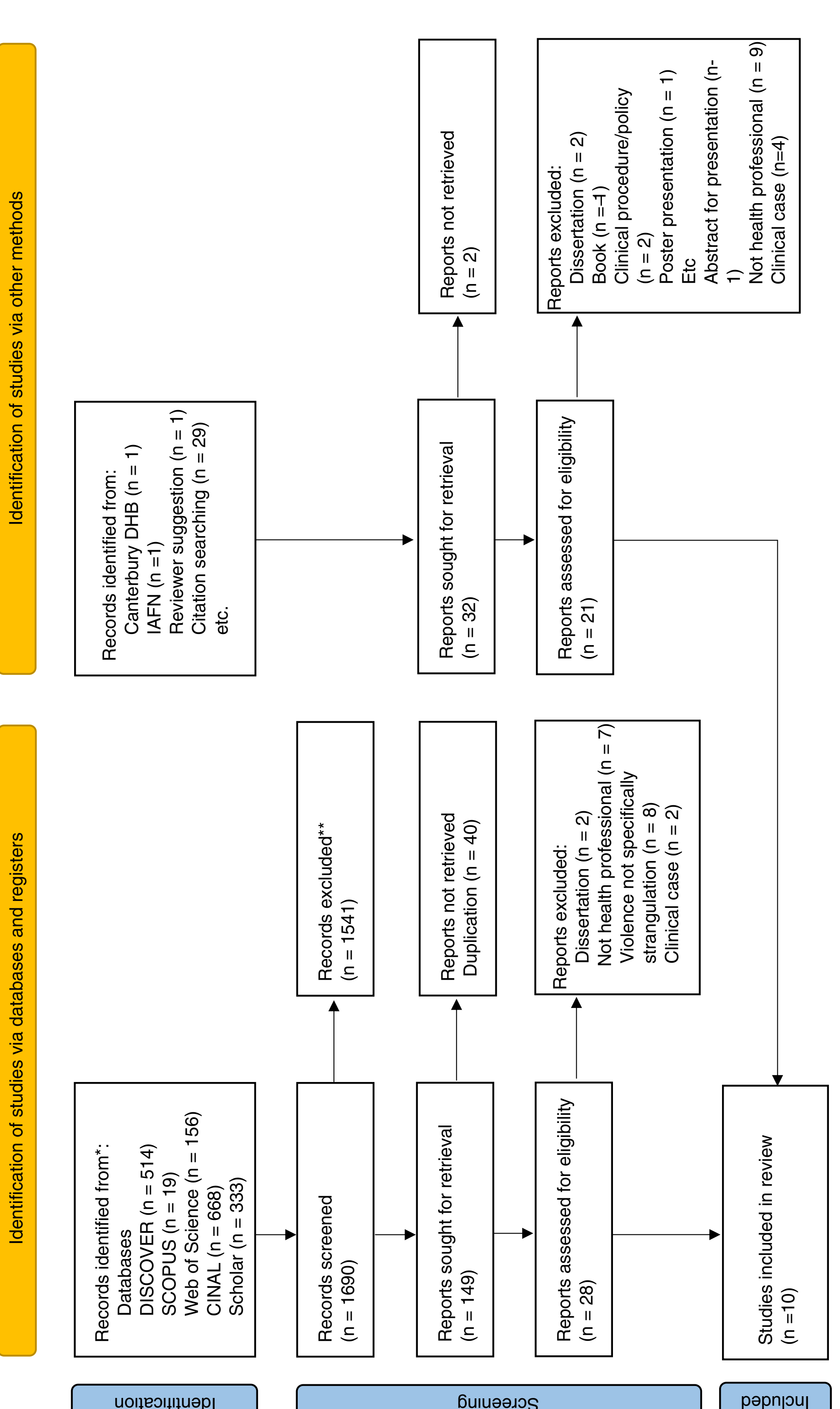

FIGURE 1 PRISMA flowchart.

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TABLE 2 Information on articles reviewed.

Authors, year, location	Population	Design methods	Findings/comments
Literature reviews			
Monahan et al. (2020), USA	Survivors' experience of Nonfatal strangulation.	55 peer-reviewed articles (1996–2019) including legal reviews and clinical case files	Underreporting and lack of routine assessment by healthcare and DV workers. The extent of injuries and long-term impact of NFS on physical and psychological health remains poorly understood. More resource facilitation is required for this population.
Patch et al. (2018), USA	Women who had experienced NFS or had sought help from police, medical centres of domestic violence services for NFS	13 peer-reviewed articles (2000–2013) including case reports, clinical files and retrospective research studies.	NFS is common. The proportion of women seeking care, that is medical and law enforcement, ranged from 5% to 69%. Injury documentation by medical staff was noted to be considerably more robust than police reports. Women's nondisclosure of mechanism of injury or minimization of injuries was reported, and multiple physical and psychological outcomes were recorded.
Pritchard et al. (2017), USA	Nonfatal strangulation literature across the areas of criminology/domestic violence, forensic science, law and medicine.	49 reviewed articles (1985–2014), looking at research on nonfatal strangulation in the following four areas; criminology, forensic science, law and medicine	Strangulation injuries may be more serious and less visible than previously understood. A need for clear, standardized definitions and measures of strangulation to be used in research and practice due to (in)consistency across assessment tools and injury reporting and recording. Develop better-coordinated responses for nonfatal strangulation in local communities. Train first responders and other service personnel to recognize, respond and collect critical evidence in strangulation incidents. Use the expertise of medical professionals to help victims and support prosecution.
Quantitative studies			
Jacob et al. (2020), Canada	586 patients who were seen in the ED or acute care for assault by strangulation	Population-based retrospective cohort study	Outcomes reviewed in this study—all-cause readmissions to ED or acute care in 30 days and 1 year of strangulation. 86% patients treated and released home from ED In-hospital mortality = 1.2% 14.9% ED readmission @ 30 days 51.8% at 1 year Common causes of readmission: 31% injury/poisoning and other external cause 26% respiratory arrest 16% mental health disorders *Only 10 out of the cohort were readmitted for another assault by strangulation Safety concerns for the high proportion released home from ED Inadequate detection/diagnosis—inaccurate figures
McKee et al. (2020), USA	882 women who received a sexual assault medical forensic exam (SAMFE).	Retrospective cohort design examining medical records between 2014 and 2019.	75 women (8.5%) experienced NFS during the sexual assault. NFS was more common in IP relationships than a stranger, with anal penetration and with a weapon. Women who experienced NFS, and those whose assaults involved weapon use were over four times more probably to receive head and neck imaging orders compared with assaults without weapon use. A need for all NFS assaults to trigger a referral for imaging.

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TABLE 2 (Continued)

Authors, year, location	Population	Design methods	Findings/comments
Patch et al. (2021), USA	Women who visited an ED in the United States with an ICD code of battering by spouse or partner.	Cross-sectional analysis of 2006–2014 Nationwide Emergency Department Sample (NEDS) data in the United States.	The prevalence IPV related visits with NFS was low at 1.2%, suggesting that strangulation is either under-reported during ED visits, not specifically coded in ED datasets, or does not result in a high proportion of ED visits. Difficulty in health professionals identifying strangulation. Strangulation codes were reflected in younger ages mean 32 versus 35 years for nonstrangulation IPV codes. Increased rates were seen in metropolitan centres and higher-level trauma centres.
MacDonald et al. (2021), Canada	209 eligible cases of nonfatal strangulation, among 1791 patient presentations	Health records review of patients treated at the Sexual Assault and Partner Abuse Care Program in a hospital.	10% prevalence of nonfatal strangulation in survivors of intimate partner violence and sexual assault. low rate of clinically important injury on the index ED visit related to nonfatal strangulation. Severe injury was primarily secondary to concomitant trauma, Utilization of CT in this cohort was low. CT of the head was obtained in 22.5%, and CT angiography (CTA) of the head and neck in 6.2% of cases. Eleven significant injuries were identified. Increased awareness is needed among ED physicians about the need to consider CTA head and neck.
Stellpflug et al. (2022)	130 patients referred to a Sexual Assault Nurse Examiner (SANE) over a 42-month period 2017–2021	A retrospective analysis of health records of patients assessed by a sexual assault nurse examiner (SANE) service.	Patients were primarily female (129:1) and their age averaged 30.6 years. Time from event to presentation varied. There were no major brain or neck injuries detected (0%; 95 confidence intervals, 0–2.31), and all patients were discharged in stable condition. Imaging was used in 23 patients (17.7%). Certain signs and symptoms were more common than others, and documentation frequency of signs and symptoms varied.
Qualitative studies			
St Ivany et al. (2021)	23 interviews from Northern New England with survivors, healthcare workers and violence/legal advocates	Situational analysis using Interviews	Healthcare providers and advocates in rural regions were hindered by the combination of lack of universal screening and the understanding that the compounding impacts of repeated head injuries through strangulation can lead to hidden symptoms of ABI that often go untreated.
Kivelä et al. (), Finland	798 cases who had presented to a hospital between 2008 and 2012 with ICD-10 codes of assault and physical abuse	Descriptive deductive content analysis.	29% of the patients who experienced IPV experienced strangulation. 12/27 patients had recorded partner perpetrator ICD codes. 70% of patients had vitals measured but only 41% have pictures or photographs or offered to have this taken of marks or wounds and these were only offered to visible injuries, otherwise was not offered. Victims experienced multiple injuries, and the violence increased with female gender, alcohol and at night-time. The majority of patients received radiologic testing; however, the patient guidelines for violence were distributed to only one patient.

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and monitor. It also signals that many experts are cognisant of the essential role of accurate diagnosis and documentation even though the research clearly shows that this is inconsistent at best. Patch et al. (2021) considered skin tone and time from/mechanism of injury as factors relating to bruising that may be missed during examination. McKee et al. (2020) reported no apparent demographic characteristics whereas multiple other authors report age (younger more at risk) and gender (female) as risk factors (Jacob et al., 2020; Kivelä et al., 2019, Stellpflug et al., 2022). Kivelä et al. (2019) went further to include risk factors of alcohol use and night-time, whereas Patch et al. (2021) included the risk factor of location, where NFS was more probably to occur in metropolitan settings. Jacob et al. (2020) identified male victims, although in general terms they were not at as much risk as females, those over 40 were deemed to be more at risk.

There were numerous assessment tools discussed in the literature, for example Danger Assessment (Campbell et al., 2009), Brain Injury Screening Questionnaire [BISQ]; (Dams-O'Connor et al., 2014) and the McLean (2015) NFS scale, to name a few, each with a different perspective and, it appears, no integration with other assessments. Furthermore, Monahan et al. (2020) suggest use of structured screening tools to accurately assess victims across time and identify any long-term impacts of NFS.

4.2 | Failure to report

The second theme, failure to report, comprises findings from the reviewed papers that identified barriers to reporting from a system, health professional and victim perspective. The papers reviewed for this study clearly identified inconsistencies in reporting, recording and documentation of NFS and, in some cases, identified specific areas of concern for action. Kivelä et al. (2019) and Patch et al. (2021) reported that the possible codes available for reporting of patient/hospital data may contribute to misreporting of NFS because of no coding category being fit for purpose. Patch et al. (2021) went further to consider that the smaller numbers than expected in their study may be the reality, or that victims may not be reporting NFS incidents.

Monahan et al. (2020) explored terminology as a barrier to reporting of NFS. These authors articulated the difference between choking and strangulation and considered whether the use of the word 'choking' by the victim may not mean the same to the health professional conducting the assessment.

Victims reported being reluctant to report incidents of NFS in several of the studies, with reasons such as being fearful of increased violence from the perpetrator, feeling unsafe in the setting or being fearful of not being believed. Many victims do not seek health care for NFS (Monahan et al., 2020; Patch et al., 2018). Even if health care is sought or received, self-disclosure about NFS can be impeded by three victim-related factors: the victims' own lack of knowledge of the significance or risks associated with NFS, the physical and psychological impacts of the NFS itself, or other concerns relating to the potential costs or consequences of disclosure. For example, victims may not consider NFS to be significant or worthy of reporting and therefore may be unaware of its symptoms, sequalae or associated risks (Monahan et al., 2020; Patch et al., 2018, 2021), and thus may not seek health care or disclose their experiences. NFS can occur without any obvious signs of symptoms being present or with delayed symptoms (Monahan et al., 2020; Patch et al., 2018), and when other traumas or violent acts are experienced at the same time, they may overshadow strangulation (MacDonald et al., 2021; Pritchard et al., 2017). Additionally, victims may not have the language to disclose NFS (e.g. using terms like choke and strangle to mean different things) or its sequalae (Pritchard et al., 2017). Finally, even if disclosure does occur, victims may conceal the mechanism of injury, and/or injuries may be minimized (Patch et al., 2018).

Nonfatal strangulation can cause a range of impacts on victims, including brain injury, cognitive or psychological deficits or behaviour changes, which can reduce their capacity to communicate their NFS experiences and sequalae, and alter their engagement or interactions with healthcare providers (Monahan et al., 2020; Patch et al., 2021). Some victims may have consumed alcohol/drugs prior to the NFS event (Kivelä et al., 2019), which also could impact their capacity to self-disclose, as well as others', including health professionals', recognition of the NFS and its impacts. Though importantly, NFS can also simply make a victim appear intoxicated (Pritchard et al., 2017). Finally, the victim may assess the costs and benefits of disclosure, with consideration of social consequences including risk from the perpetrator, a desire to protect the perpetrator, loss of privacy or separation from children, or doubt the capacity of the health system response, and thus conclude that the risks of disclosure are greater (Patch et al., 2018).

Some victims experience larger barriers than others, potentially associated with social economic status and geographic regions (Jacob et al., 2020; Patch et al., 2021; St Ivany et al., 2021). Barriers to self-disclosure highlight the particular risk of settings in which strangulation is not screened, or not asked outright, as this places all responsibility for detection with the victim. This may be magnified for victims with darker skin tones, as their injuries may be harder to observe (Patch et al., 2018, 2021), meaning the likelihood of health professionals' observing their injuries and initiating screening is reduced, and thus the weight of self-identification/disclosure may be greater.

Victims may interact with the health system at various times associated with NFS. For example, they may have contact immediately following the NFS, or quite sometime after (Jacob et al., 2020). They may have contact due to the sequalae of NFS, without knowing that the NFS is the primary problem, or they may interact with the health system in the context of other broader needs such as other violent victimisations. When NFS occurs, it can also be concurrent with, or immediately preceding or following other physically violent acts which can themselves cause a range of injuries and symptoms. These widely varied, and complicated presentations can create larger barriers for identification and appropriate response (Jacob et al., 2020; Patch et al., 2018).

Normalization of the problem through preconceived beliefs by health professionals was also identified. The choices or actions made

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by the people who are experiencing nonfatal strangulation such as not attending appointments, being agitated, aggressive and using substances, were viewed as just a part of societal norms or group culture, rather than recognizing that choices and decisions may be compromised or impaired by the consequences of a brain injury due to the strangulation event itself (Monahan et al., 2020; Patch et al., 2021). Furthermore, normalization was described in terms of colloquial or cultural narratives, defined as violence is a normal part of heterosexual relationships, generational violence and extreme loyalty to family by not wanting to discuss what is happening behind closed doors, as playing a role in the type of care and treatment provided. Normalization implies that a potential stigma of 'deservingness' of treatment is given to individuals or families by health clinicians, further marginalizing a vulnerable population group. Additionally, clinicians describe how busy and understaffed they are and a need for weighing up of health priorities during already very busy patient visits. Health professionals also expressed concern about screening fatigue and screening for something with no or limited resources and therefore leading to lack of treatment interventions or ability to refer for treatment interventions (Patch et al., 2021). The lack of treatment interventions was more pronounced in rural regions than in urban regions (St Ivany et al., 2021). This is important in the New Zealand and Australian contexts due to a higher proportion of their Indigenous populations living in rural areas rather than large urban areas and who already endure the most health inequalities. Screening fatigue and screening for something with no or limited resources also leads to 'normalization' that social, political and economic structural factors lie outside of the clinical arena and, therefore, cannot be addressed or challenged.

4.3 | Failure to follow up

The long-term effects of NFS were also identified as under-recognized in current healthcare practice, and as such follow-up care was not considered a priority by the care provider or the victim. The neurological, cognitive and physical symptoms of brain injury associated with NFS may not be apparent for some time and as such, the link to NFS is quite often not made (Monahan et al., 2020).

Importantly, vulnerabilities and risks for victims extend beyond their healthcare interactions. Limitations in record keeping or provision of appropriate care in their health system interactions can flow on to short- and long-term impacts including ongoing barriers to other necessary treatments (such as mental health interventions/supports or rehabilitation), impaired employment capacity and unsuccessful criminal justice responses (Monahan et al., 2020; Patch et al., 2018; Pritchard et al., 2017). In summary, insufficient health system interactions can extend to insufficient interactions with other systems.

Furthermore, this review found that health professionals rely on subjective observation and neurological symptoms reported by the patient and lack objective measures of neurologic function something that is very problematic when patients may be presenting with memory loss, hypoxia and confusion and may not want to disclose what is happening. Additionally, the literature describes how medical records had omissions or errors around injuries, and nonfatal strangulation ED triage codes were often omitted, incorrectly recorded or limited (Kivelä, et al.,2019). Furthermore, due to the change from written to electronic health records, it was noted how some patient information may be 'lost' under a screening tab, or made available to only certain health areas, such as sexual assault nurses, or mental health, rather than remaining in the general notes. This is problematic when the research demonstrates that there is a lack of universal screening, limited protocols and procedures around nonfatal strangulation and head injuries and how family violence screening tools have limited questions around nonfatal strangulation assessment (MacDonald et al., 2021; Pritchard et al., 2017) to guide health professionals. Furthermore, even when treatment has been given, successful recovery depends on effective discharge instructions, which include concepts that take a trauma-informed approach. Kivelä et al. (2019) described how most patients received radiologic testing and vital sign checking, but how only one patient in their study received discharge guidelines around violence and safety, highlighting the need for effective discharge information and failure to follow up. Health professionals have described the need for more discharge education resources and planning around nonfatal strangulation and traumatic brain injury (Jacob et al., 2020; Patch et al., 2021).

While much attention is paid to females and what they are doing to keep themselves or their children safe by health professionals, those using the violence (often their male partners) have been rendered invisible and potentially emboldened in the health system. Often, the perpetrator of the NFS is not recorded/identified in health records, despite available International Classification of Diseases (ICD) codes (Jacob et al., 2020; Kivelä et al., 2019). The perpetrator may have achieved control over the victim and ensured their nondisclosure either by instilling fear of consequences (Patch et al., 2018) or by creating physical, psychological or cognitive impairments via the strangulation. Likewise, victims are often discharged home following NFS-related hospital visits (Jacob et al., 2020), indicating that health professionals do not understand the implications of the situation where perpetrators could resume their control of their victim immediately. Perpetrators may also be present with the victim and exert their power and control in the health setting, or the fear of their later access to information could be enough to prevent victims from disclosing in their absence.

5 | DISCUSSION

Our results have demonstrated that front-line professionals lack recognition of NFS and if they do recognize it, there is stigma, normalization, subjectivity and professional dangerousness all impacting on how the victim is managed and treated (or not). Professional dangerousness describes the process by which

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individual workers, or multidisciplinary networks can, often unwittingly, act in such a way as to collude with, maintain or increase the dangerous dynamics of the family in which abuse takes place (Calder, 2011). Professional dangerousness involves the feelings of denial, minimizing and rationalizing NFS by health workers. This can occur because the situation is so complex, stressful and full of anxiety that health professionals often avoid raising concerns either out of fear or feelings of incompetence as a way to protect themselves. This can also occur because the service itself lacks the policies and guidelines and/or the professional development and skills development associated with helping professionals to recognize, report and follow-up NFS. Professional dangerousness also emerges when there is mistrust of other departments and services, and therefore health workers fail to communicate effectively, share information or refer NFS victims appropriately. Denial or stigma related to NFS is also a major barrier to effective care of victims with NFS symptoms (Crowe & Murray, 2015).

The failure to identify NFS has negative impacts on social, economic, personal and physical elements of a person presenting with NFS, the fallout from which spills over into their entire social network. As our findings have shown, the failure to recognize the key signs of NFS results in a failure to report the incident, meaning that the victim is left vulnerable and will not receive the support and long-term clinical, social and psychological support they need. Victims of abuse then merely 'cycle within cycles' where they move between abusive relationships that they cannot extricate themselves from, compounded by low-paid work and welfare reliance (Bell, 2003, p. 1245). Nurses, as one of the most common front-line supporters in their many positions and roles across the healthcare continuum, are in an excellent position to change this cycle. They have a role in communicating, educating, advocating and acting as catalysts for change in public health (Sundborg et al., 2012). They are educated to use evidence-based practice and can help design and implement specific interventions to give the best care to victims of nonfatal strangulation.

The problem that nurses face are that much of their work comprises of emotional labour where they are expected to show empathy without showing their emotions (Bradbury-Jones & Taylor, 2013; Harvey et al., 2017). Because nurses are predominantly women, they themselves may have encountered IPV, either as a witness to it in their family, or as a victim themselves, when recognizing that 90% of all IPV is perpetrated by men against women (Bradbury-Jones & Taylor, 2013). Therefore, it makes sense that nurses' own experiences may alter how they communicate with and assess the victim of NFS. Bradbury-Jones and Taylor (2013) call this abjection where nurses may either emotionally connect with the victim, or they may reject them. Both situations affect how nurses provide care. With a statistic of one in every three females in New Zealand and Australia being affected by family violence, alongside a predominantly female workforce, a substantial number of nurses may well have been victims of abuse or have been witness to family abuse and therefore struggle to provide empathetic support to victims (McLindon et al., 2018).

Compounding personal experiences, health professionals in New Zealand and Australia have verbalized their concerns at raising cultural issues when assessing victims of NFS, with fears of powerless of what to do with the information they receive, and fear of offending the victim, particularly when there is considerable hesitance in disclosure by the victim (Fanslow & Robinson, 2010; Herring et al., 2013; Spangaro et al., 2021). Fanslow and Robinson (2010) found that more than 40% of women victims of IPV interviewed in a New Zealand study 'could not endure more' interrogation particularly when violence was normalized (p. 929). However, failure to assess has the potential to influence cultural norms by hiding the true extent of nonfatal strangulation in society. Not screening or assessing for nonfatal strangulation reinforces the notion that nonfatal strangulation is acceptable (Richardson et al., 2018).

Intimate partner violence and NFS are becoming more common, particularly in the current climate of the COVID-19 pandemic, where family violence is increasing alarmingly (Boserup et al., 2020). The need for professional and assessment skills development is urgently required to support front-line workers in the assessment, management and follow-up of victims of NFS (DeBoer et al., 2013; Messing et al., 2018; Zilkens et al., 2016).

5.1 | Limitations

This review involved a comprehensive search of the main health science databases most representative of research pertaining to health professionals and nonfatal strangulation. However, only three countries, Finland, the USA and Canada, are represented in this review. Of note is that much of the literature relating to NFS is from 2017 onwards, indicating this is still an emerging field. Most of the studies were conducted in the American health system which differs in terms of the management, financing, organization of care compared with European and Oceania health systems, therefore the generalizability of the results may be limited.

Our explicit focus on the health profession is both an advantage and a limitation. It is an advantage because it allows us to focus on the specific knowledge and practices of health professions and a limitation because other professionals working in family violence shelters or mental health facilities are not considered here.

6 | CONCLUSION

Rates of early detection and intervention by front-line responders are noncommensurate with increased understanding of adverse outcomes and complex factors associated with nonfatal strangulation. Lack of training and fear of not knowing what to do next are barriers to providing care to victims. Failure to detect, manage and support victims will continue the cycle of regression that is associated with economic, social, physical and psychological morbidity, and in many cases, death through the long-term effects of strangulation, along with increased

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homicide and suicide rates. Early detection and management of strangulation is essential to prevent health complications, particularly when the victims are exposed to such behaviours repeatedly.

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Andrea Donaldson is a peer reviewer for the Journal of Advanced Nursing, all the other authors have no conflict of interest to declare.

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