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An exploration of frontline health professional's current understanding of non-fatal strangulation

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Abstract

Aim: To explore frontline health professionals' current understanding of non-fatal strangulation and their need for and support for a comprehensive education and screening package to support health delivery.

Design: A descriptive mixed-method approach was chosen to analyse responses to an anonymous, online survey consisting of ten Likert scale, open-ended and five demographic questions. 103 frontline health professionals (nurses, doctors, paramedics, midwives) participated in this study.

Methods: Content analysis of the Likert scale and open-ended questions describing the subjective experiences and perceptions of the participants was undertaken along with percentage and frequency counts of the rated Likert responses.

Results: The findings identified that 51.1% of health professionals do not ask about strangulation routinely and that 59% of health professionals reported receiving no formal education or professional development on NFS to enhance their knowledge or inform clinical practice. No health professionals identified mild traumatic brain injury as a consequence or sign of strangulation, nor did they identify an understanding that 50% of people may have no visible injuries after being strangled. Health professionals also do not routinely document the different agencies referred to or involved in supporting the person who experienced NFS.

Conclusion: Findings suggest that frontline health professionals lack the confidence, skills and education needed to meet medical obligations to their patients and to fulfil their duty to 'do no harm'. Frontline health professionals would welcome a comprehensive education and screening package to guide recognition and response to non-fatal strangulation in their clinical settings.

Where and on Whom Will the Research Have an Impact?The purpose of the study was to understand and explore health professionals' knowledge about non-fatal strangulation so that improved education around better screening, and management of trauma-focused care to people who have been subjected to non-fatal strangulation could occur.

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

KEYWORDS
choking, frontline health professionals, health professionals, knowledge, non-fatal strangulation, nurses

1 | INTRODUCTION

Non-fatal strangulation (NFS) is a serious and distinct form of violence generally perpetrated against women, although men are not excluded (Glass et al., 2008). Strangulation is defined as external compression to the neck that can cause consequences that may be fatal because of compression of, and injury to, the vital structures in the neck such as the airways, blood vessels and nerves of the neck (Royal College of Pathologists of Australasia, 2018). The lifetime incidence of NFS in an intimate partner relationship is estimated to be as high as 58% (Zilkens et al., 2016). In the US, 10% of women report an incidence of strangulation by an intimate partner in their lifetime (Patch et al., 2021) compared with 18.9% in the UK (White et al., 2021). There is a paucity of literature on the incidence of NFS from low- to middle-income countries. Globally, NFS has intensified since the COVID-19 pandemic (Felten, 2023; King et al., 2023), leading to the introduction of the term 'shadow pandemic' to describe the increase in recognized NFS events worldwide (Snowdon et al., 2020).

In 2018, the United Nations released a study into intimate partner and family-related homicide where they stated that the 'most dangerous place' for women around the world may be at home (UNODC, 2018, p17). Today, this statement remains true, with one in three New Zealand (NZ) women experiencing intimate partner violence across their lifetime or one in two if they are indigenous (Fanslow et al., 2023). Currently, New Zealand has one of the highest rates of family violence in the developed world (Dissanayake & Bracewell, 2022). Approximately, 48% of all intimate partner violence survivors who presented to an NZ hospital over a four-year period had reported being strangled (King et al., 2023). Furthermore, five people a day, on average in NZ, are charged with strangulation or impeding breathing showing the extent of the problem (Edwards & Douglas, 2021).

Literature shows that victims of family violence who have been strangled have seven times the risk of being killed than those of family violence victims who have not been strangled (Glass et al., 2008). NFS has also been conceptualized as a tactic of coercive control, by the perpetrator sending the message to the victim that they can kill them to force compliance (Thomas et al., 2014). NFS can be experienced multiple times by a victim across their lifetime (Edwards & Douglas, 2021) increasing the risk of mild traumatic brain injuries (King et al., 2023).

However, the occurrence of NFS is not limited to violence within a family. Pornography often includes strangulation as usual and even acceptable behaviour (Fritz et al., 2020). Increasingly, young people report first learning about strangulation from pornography as well as from peers, or mainstream media including Internet memes (Herbenick, Guerra-Reyes, & Patterson, 2022). Strangulation during sexual activity has been identified as a growing trend among youth in NZ (Beres et al., 2020), and some young people who engage in consensual sexual strangulation are unaware of the risks involved (Herbenick, Fu, et al., 2022). Combat sports such as martial arts or military training, and law enforcement action often involve strangulation and are seen as normal without the consideration of health risks (Channon & Matthews, 2022; Hickman et al., 2021; Stellpflug et al., 2020).

Notably, around 50% of people who experience strangulation will not have any visible injuries or signs (Bichard et al., 2021), and the consequences of strangulation are not always immediate. Visible injuries and signs can develop weeks or months later (Bichard et al., 2021). Furthermore, current literature shows that people may minimize symptoms, do not report being strangled, do not remember being strangled or do not associate future symptoms weeks or months later with being strangled, all of which contribute to the challenges of being able to treat these victims (Fanslow & Robinson, 2010., Bichard et al., 2021., Herbenick, Fu, et al., 2022).

Therefore, understanding health professionals' knowledge of NFS, when it occurs and how to assess and manage it is important to ensure that appropriate and effective health interventions, justice and professional accountability occur. Health professionals' ability to screen for and address NFS may help influence cultural norms by not reinforcing the notion that NFS is acceptable with minimal health risks.

2 | BACKGROUND

Acute and long-term health risks have been shown to be associated with strangulation, especially when performed repeatedly or at increasing intensities. Specific problems such as depression, PTSD, anxiety, suicidality, stroke and traumatic brain injuries (TBI) and cognitive impairments such as concussion, memory loss, confusion, headaches, seizures, vision and hearing changes have been recorded (Bichard et al., 2021; Herbenick, Guerra-Reyes, & Patterson, 2022). The most severe consequence of strangulation is death. The neurological consequences of exactly what is happening in the brain to cause these health effects are only just beginning to be examined,

with research by Huibregtse et al. (2022) and Hou et al. (2023) showing that being strangled is associated with neuroanatomical structural changes in the brain.

Despite these health effects, research has shown that survivors do not have a good understanding of these health risks beyond addressing the emotional trauma (Patch et al., 2021). Women routinely only seek help for the strangulation event to document injuries and because of pain, voice changes, breathing difficulties or difficulty swallowing (Donaldson et al., 2023; Fanslow & Robinson, 2010; Messing et al., 2018; Monahan et al., 2020) and normally on the recommendation of law enforcement (Patch et al., 2021). Treatment seeking was also shown to increase as the frequency of strangulations increased (Donaldson et al., 2023; Patch et al., 2021., Messing et al., 2018). However, most survivors of strangulation often do not seek care because of reasons such as fear of the consequences, stigma related to sexual taboos, the shame of what others might think, cultural norms that prevent reporting and threats to safety by the abuser (Donaldson et al., 2023., King et al., 2023). Some victims experience larger barriers than others to be able to seek support or to disclose NFS due to living in a rural or remote geographic region with limited support, or due to social structural consequences such as separation from children, impaired employment capacity, or that they doubt the capacity of the health, social and justice system response (Jacob et al., 2020; Patch et al., 2021; St Ivany et al., 2021). These barriers to self-disclosure highlight the ongoing risk to women, when strangulation is not screened for, or not asked outright, placing all responsibility for detection with the victim. This barrier may be magnified for victims with darker skin tones, as their injuries may be harder to observe (Patch et al., 2018, 2021). This means the likelihood of others' observing their injuries and initiating screening is reduced, and thus the weight of self-identification/disclosure may be greater.

Despite increased health consequences for victims and issues for why victims may not seek help, research has shown that first responders, from ambulance personnel to Emergency department providers, lack specialized training and/or fail to identify the signs and symptoms of strangulation Monahan et al., 2020; Messing et al., 2018, Donaldson et al., 2023). Significantly, an integrative review described how frontline health professionals failed to recognize non-fatal strangulation, failed to report NFS and failed to follow up on victims after experiencing NFS (Donaldson et al., 2023). In addition, there is a paucity of evidence-based protocols or approaches in literature around how health professionals identify, screen and assess for NFS (Donaldson et al., 2023., King et al., 2023). To complicate the issue further, there is only one screening and assessment tool available for professionals to use in NZ, that is, Ministry of Health guidelines for IPV and strangulation assessment (Fanslow & Kelly, 2016), which does not discuss traumatic brain injuries (TBI) or even consider this as a health consequence. This means that even if victims do present to healthcare professionals, there is an absence of evidence-based protocols or approaches around the identification of NFS, guiding the medical management of non-fatal strangulation or NFS-related traumatic brain injuries (NFS-TBI), making it impossible to standardize care. The impact of these absences poses significant risks of increasing disadvantage for already vulnerable populations.

In NZ, preventing and reducing family violence, including NFS, is a priority for the government (Fanslow & Kelly, 2016). As such, from an organizational/governance perspective, routine enquiry, risk assessment, referral and follow-up are expected from all health professionals. However, despite this, routine enquiry and referral are not legally mandated and therefore may be missed in the planning and provision of care.

3 | THE STUDY

Aims

This study aimed to explore frontline health professionals' current understanding of non-fatal strangulation and their need for and support for a comprehensive education and screening package to support health delivery.

4 | METHODS

4.1 | Design

A descriptive, mixed-method approach was chosen for this study. The study utilized an academic researcher-designed Qualtrics questionnaire. Content for the questionnaire was based on the integrative literature review by Donaldson et al. (2023), describing how frontline health professionals identify and manage NFS events. The questionnaire consisted of five demographic questions (age, gender, profession, area of practice and years within that area of practice) and ten combination Likert scale and open-ended questions. The Likert scale represented ordinal responses by respondents to rate the degree to which they agree or disagree with a statement (e.g. How often have you been assessed for non-fatal strangulation in your duties as a first responder? Never, Rarely, Sometimes, Often, Always). The open-ended questions were designed to allow for more contextual insights into the frontline health professional's understanding of NFS. This included, for example, 'How often did you assess for strangulation in the course of your duties', 'How well prepared do you feel to assess and respond to strangulation', 'What signs and symptoms do you identify with strangulation' and 'Do you use strangulation assessment tools and if so, what do you use?'. For a full list of all the questions asked, please see the questionnaire listed in Appendix 1. Once the questionnaire was developed, nursing experts and health professionals in the field of strangulation from both New Zealand and Australia extensively reviewed the questionnaire and gave input on its content, comprehensiveness, readability and validity since no survey reviewing health professional's knowledge of this topic had been undertaken in New Zealand previously. The questionnaire was not piloted due to time and financial constraints.

4.2 | Participants

Eligible participants were those currently practicing as frontline health professionals who work in NZ emergency departments, primary healthcare organizations and ambulance service, and have a professional health qualification. Frontline health professionals were defined as hospital emergency nurses and doctors, midwives, social workers, nurse practitioners, nurse prescribers, paramedics, general practice doctors and nurses for this study. These frontline professionals were chosen because they are the first people who see and treat victims of violence and strangulation hours, days or weeks after the event, even when the victim does not attribute the health problems to the strangulation event. The questionnaire was advertised online via social media (Facebook and Twitter) and through professional bodies' websites such as the NZ Nurses Organization, Emergency Nurses' section, General Practice Council and Paramedic Council to recruit participants. Additionally, the questionnaire was distributed to NZ hospitals by emailing and obtaining permission in each of the targeted public hospitals with emergency departments, to disseminate the information about the research project to their current workforce via their intranet platforms to recruit participants. Consent was implied when the project information was read, and the anonymous questionnaire was commenced. The survey was available between August and October 2022 and took approximately 20 min to complete. 103 participants from around NZ consented to participate in the survey and not all participants answered all survey questions.

4.3 | Data analysis

Content analysis is a method that may be used with either qualitative or quantitative data and in an inductive or deductive way (Elo & Kyngas, 2008). Qualitative content analysis is commonly used in nursing studies as a means of describing and quantifying phenomena (Elo & Kyngas, 2008). Deductive content analysis is used when the structure of the analysis is based on previous knowledge, in this case, findings from the integrated review (Donaldson et al., 2023), which frontline health professionals lack specialized training, fail to recognize non-fatal strangulation and fail to document and follow up.

The open-ended responses and Likert scales were analysed using quantitative content analysis as described by Elo and Kyngas (2008). The analysis was deductive and resulted in the categorization of responses according to the research questions. Two researchers reviewed the data and agreed on the categories (Author 1 and Author 2). All co-authors then reviewed the data and agreed on the categories. Percentage calculation and frequency counts were used to examine the rated Likert response associated with the subjective experiences and perceptions of the participants. Explicit quotes were used as examples within each of the categories identified from the participant's responses.

4.4 | Ethical considerations

This study was carried out in strict accordance with the health and disability ethics committee approved by Massey Human Ethics Southern A committee (Approval number SOA 22/14).

4.5 | Funding considerations

This research received funding from the Health Research Council of New Zealand Ref ID#: 21/892.

5 | RESULTS

5.1 | Demographics

The demographics section of the questionnaire consisted of a total of five questions focusing on age, gender, current profession, area of expertise and years working in this role. Only 67 of the 103 participants chose to answer the demographic questions. As shown in Table 1, 29 were nurses, 21 doctors, four midwives, eight paramedics and five 'others' (including two social workers, a nurse practitioner, a nurse prescriber and one non-disclosure). Table 1 also shows that there were more female participants than males and that most participants were aged 45 years or over and had five or more years of experience working in their field. Table 1 also shows most participants worked in public hospitals, with the remaining working in community rural, community city and primary health organization settings.

5.2 | Professional development/education/preparedness

An open-text response item invited the respondents to provide information regarding any professional development or education they had undertaken relating to non-fatal strangulation. Eighty-six respondents provided a meaningful response to this item, and the majority of these ($n = 51$, 59.3%) indicated that they had received no formal education or professional development that was focussed on NFS. Some of these respondents clarified their responses by noting only informal learning, such as on-the-job experience or informal discussion in the workplace. For example, responses included 'nil bar in the job explanations from social work', 'from involvement with police only', 'awareness from justice bill passed', 'None except learning on the floor' and 'None really'. One participant stated, 'We talk about it a lot as it happens often, but no actual education'. Additionally, some of these respondents highlighted that NFS was included briefly in domestic/family violence-focused education or training but was not very specific to assessment or treatment. For example, 'None other than a

mention in the family violence training'. 'Nothing clinically helpful' and 'Nothing specific to non-fatal strangulation'. Similarly, some participants noted that NFS receives minor attention in risk assessment training, 'None other than brief coverings in mandatory training of risk assessments' and 'None specifically but we do an annual domestic violence risk education day and have DV screening tool/questionnaire that asks about being strangled/hit'.

Participants were then asked how well prepared they were to assess and respond to NFS; the survey response Likert options included 'not well at all', 'slightly well', 'moderately well', 'very well' and 'extremely well'. Among the 87 (77%) that responded to this question, only two participants (2.2%) indicated they were extremely well prepared; these two participants explained that they felt like this because of the formal training they had received. Thirty participants (34%) stated they were moderately prepared due to some informal education around family violence even though it was not specific to strangulation; the remainder of participants (63%) said they were either slightly well prepared or not well prepared to assess for NFS.

The respondents were also invited to provide a free-text response regarding whether some circumstances or characteristics make it particularly challenging to recognize or respond to non-fatal strangulation. Of the 63 responders who provided a meaningful comment, all the participants identified at least one of the following challenges as shown in Table 2.

TABLE 1 Demographic characteristics of participants ($n = 103$).

Characteristics	Number
Age	
18–24	1
25–34	10
35–44	13
45–54	20
55–64	17
65–74	6
75 and older	0
Gender	
Female	56
Male	11
Nonbinary/third gender	0
Prefer not to say	0
Current profession	
Nurse	29
Doctor	21
Midwife	4
Paramedic	8
Other	5
Area of expertise/work	
Community rural	5
Community city	9
Public hospital	50
Primary healthcare/NGO	3
Years of experience	
6 months of less	1
Over 6 months, up to 1 year	1
1–3 years	2
4–5 years	3
6–10 years	21
More than 10 years	39

5.3 | *Health professionals'* approaches to assessment of non-fatal strangulation

A key component of the study was to determine if frontline responders used or had knowledge of existing policies and processes regarding the assessment of non-fatal strangulation. Questions regarding current policies enabled us to compile existing knowledge on when and why they screen but also enabled comparisons of current clinical practices in NZ to current literature and evidence-based recommended best practices. Respondents were invited to provide free-text elaboration on questions regarding their clinical practice in identifying and assessing people who have experienced NFS. They were also asked what if any assessment tools they use.

5.3.1 | Identifying and assessing people experiencing NFS

The first question on how often participants assessed for NFS in their duties as first responders is shown in Figure 1. This was a Likert scale question with response options including 'never', 'rarely', 'sometimes', 'often' and 'always'.

Among the 94 (91.3%) respondents who responded to this item, just over half ($n = 48$, 51.1%) had 'never' ($n = 22$, 23.4%) or 'rarely' ($n = 26$, 27.7%) assessed for NFS in the course of their duties, compared to 46 respondents (49%) who had 'sometimes' ($n = 37$) or

TABLE 2 Health professionals' responses to circumstances or characteristics that make it particularly challenging to recognize or respond to non-fatal strangulation.

Presence of family/partner/friends in room
Person unwilling to provide or reluctant to provide information
Persons with mental health disorders, trauma or using substances making assessment difficult
Other urgent more distracting, significant injuries
Not the main complaint for seeking treatment
Person doesn't have visible injuries and doesn't mention it
Lack of training
Lack of time
No quiet space to assess
Person does not want further assessment or healthcare

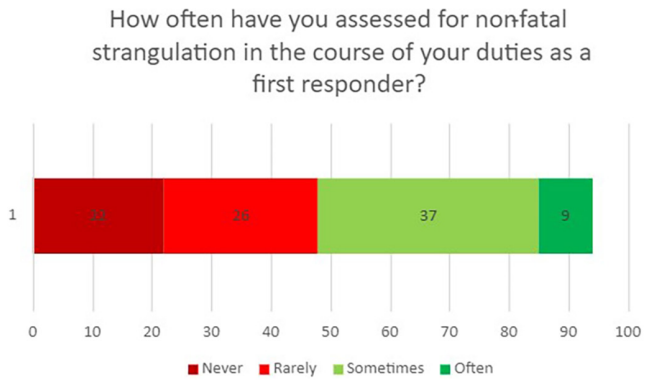

FIGURE 1 Participant's responses to how often they assessed for non-fatal strangulation in their role.

TABLE 3 Signs and symptoms health professionals identify and that prompt them to assess NFS and the number of respondents who identified each sign and symptom.

Voice changes	9
Swallowing changes and/or difficulty	8
Breathing difficulties, shortness of breath or stridor	13
Physical signs like bruising, swelling, tenderness around the neck area, changes in skin colour	42
Bloodshot eyes, petechia around eyes or changes in vision	29
Incontinence	2
Pain around head or neck	14
History of being strangled or family violence	3
Blackout/loss of consciousness/decreased GCS	8
Disorientation or seizures	4
Memory loss	3
Nausea	3
Recreational drug use and self-harming	2
Mental health problems or history of suicidal attempts/self-harm	2
Nonspecific reasons, i.e. following the assessment pathways, or patient stated they had been strangled	7

'often' ($n = 9$) assessed for NFS in the course of their duties (Figure 1). No respondents reported 'always' assessing for NFS.

A second question 'When they would assess for strangulation?' was asked, with 41 participants who chose not to answer this question. Of the 72 participants who did respond, 41 (57%) reported they would assess for strangulation when patients reported that they had been strangled. Indicating that the patients had to disclose NFS first, otherwise, no assessment would have been performed. Twenty-six participants (36%) reported assessing for NFS when they observed signs and symptoms or if the person had a family violence history. Five participants (6.9%) indicated 'other' reasons they would assess for NFS such as when they were asked to by a colleague, or if they suspected it. The majority of all participants responded with a combination of both when the patient disclosed NFS and if they observed signs and symptoms and/or history of family violence.

Participants were then asked what signs and symptoms if any; they identify with NFS and/or would prompt them to assess for NFS. Out of the 70 that answered this question, 67 participants (96%) identified relevant signs as shown in Table 3; however, not all respondents identified all the signs and symptoms listed. Forty-two participants (60%) identified the following things: physical signs such as bruising, swelling, tenderness around the neck area and changes in skin colour. Thirty-one participants (44%) identified bloodshot eyes, petechia to or around the eyes or vision changes. Thirteen (18%) and eight (11%) of participants recognized breathing difficulties, shortness of breath or stridor, and Blackout, loss of consciousness or decreased GCS, respectively, as shown in Table 3. Seven participants (10%) identified nonspecific reasons for assessing NFS such as following the assessment pathways for sexual assault or family violence, or that the patient had stated they had been strangled. No participants mentioned traumatic head injuries.

5.4 | Availability and use of non-fatal strangulation assessment tools

Respondents were asked if they use a validated NFS assessment tool. Among the 70 participants who responded to this item, only 14 participants (20%) stated that they use validated NFS tools such as the Violence Intervention Programme (VIP) pathway, pro forma created by MEDSAC[i] clinic in the region or hospital-specific pathway. Alarmingly, 56 participants (80%) indicated they do not use validated assessment tools. Some of the 56 justified why, by saying they were not aware such tools existed, or indicated they were not trained or taught about such tools. Eighteen participants (60%) reported they do not have any specific assessment tools in their workplaces and two participants (2.8%) stated that they do not receive NFS victims at their workplace, although they did not quantify why this was the case. It is more probable that these two individuals were not involved in the care of individuals experiencing NFS, as opposed to their facility not accommodating them.

Participants were asked to indicate what referrals they would make after doing an NFS assessment and to whom. Seventy participants responded to this question, and 61 participants (87.1%) mentioned multiple referrals. These included social workers, the police and further medical assessments including Māori Health. Six participants (8.5%) were unsure of where to refer NFS victims and stated that such referrals would depend on the victim's status. Three participants (4.3%) stated that the question did not apply to their area of work again without any quantifiable explanation. It is highly probable that these participants were not directly involved in providing care for individuals experiencing NFS, resulting in the absence of any referrals.

Participants were requested to specify the information they would document in patient files regarding care and discharge. Seventy participants answered that question with most participants stating that they would document the incident that occurred in the patient's own words, the signs and symptoms present, any

assessments completed such as vital signs, neuro observations, imaging, as well as the treatment and follow-up given. Seventeen participants (23%) discussed they would also document any history of violence or previous family violence. Five participants (7%) mentioned that they would document if other agencies, that is, police, social workers and Oranga Tamariki (child/family services), are involved in the person's care or if they referred the person to other services. No participants mentioned if they would document if the person participated in sports such as martial arts and may be at risk for future NFS injuries.

5.5 | The need for a more comprehensive non-fatal strangulation package

Respondents were asked if they saw a need for a more comprehensive NFS package to guide clinical recognition and response to non-fatal strangulation. Likert scale responses included 'definitely', 'probably', 'possibly', 'probably not' and 'definitely not'. Seventy participants responded to this question, and 40 participants (57%) definitely saw a need for a more comprehensive NFS package to guide the recognition and response to NFS (Figure 2). Twenty-five participants (35.7%) mentioned that an NFS package would probably or possibly guide NFS recognition and response, while five participants (7.1%) did not agree with the need for a more comprehensive NFS package (Figure 2). Respondents were invited to elaborate on their answers via free-text responses.

Respondents who had answered 'probably not' and 'definitely not' provided text responses that indicated a perception that existing processes or tools were sufficient, for example, 'Domestic violence screening flags those at risk of repeat events. If there are injuries requiring treatment, they are easy to identify', 'existing guidelines on hospital health pathways exist so why make more' and 'tools and support are available'.

There was some heterogeneity in the free-text elaboration among respondents who thought there was 'possibly' a need. For example, participants stated, 'Not sure more tick boxes would get completed'. 'Some information around spotting symptoms and how to talk to clients [sic] as well as what is available would be useful', 'I don't know much about it, so yes', 'A Health pathways or protocol to be followed to assist trainees in performing and documenting the assessment, as well as the local context for contact numbers, would be good' and 'There isn't terribly good concrete evidence on which patients require imaging (we likely over-image, generally), but that could be an area for better prospective research or education'.

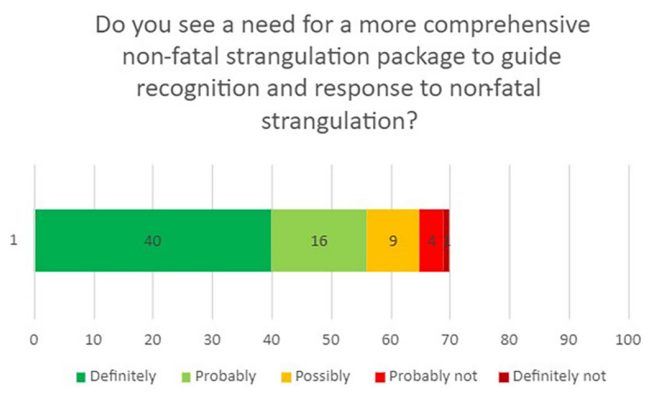

FIGURE 2 Participants" responses to the question, 'Do you need a comprehensive education package to guide recognition and response to non-fatal strangulation?'

6 | DISCUSSION

Over the past decade, national and international bodies have called for improved awareness and responses to strangulation, particularly across the health sector (García-Moreno et al., 2005; King et al., 2023; Peterman et al., 2020). Policies have been introduced in several countries, including NZ implementing routine enquiry about Family violence, but these routine enquiry assessments generally only have one question related to strangulation and it is not always obvious or specific to strangulation. For example, in NZ, our screening question is 'Within the past year have you ever been hit, pushed shoved, slapped, kicked, choked or otherwise physically hurt' (Fanslow & Kelly, 2016). Despite the call for improved awareness, health services often fail to adequately address, screen for and assess strangulation.

This research demonstrates that many health professionals do not ask about strangulation routinely, and most participants indicated that they had received no formal education or professional development that was focussed on NFS. These findings are consistent with current research which describes how health professionals rely on subjective observation and neurological symptoms reported by the patient and lack objective clinical measures of neurologic function (Donaldson et al., 2023). The implication of health professionals relying on patients reporting strangulation is problematic when patients may have mild brain injuries and present with symptoms of memory loss, hypoxia and confusion and/or may not want to disclose what is happening.

Furthermore, this study showed that the symptoms of NFS on presentation may be hindered by the presence of other significant injuries requiring intervention. This finding has been reported by multiple other research groups (Jacob et al., 2020; Kivelä et al., 2019; MacDonald et al., 2021; Stellpflug et al., 2022) and indicates that the subsequent assessment of the effects of NFS is not often undertaken.

The findings from this study indicate that health professionals lack knowledge around signs and symptoms (or lack thereof) and that they also lack confidence or guidance around how to inquire or respond safely and appropriately to NFS, so instead choose not to. In the absence of training and clear assessment and treatment pathways, health complications, cannot be prevented or mitigated (Donaldson et al., 2023; King et al., 2023). This is significant when our study showed very few respondents documented other agencies involved in the person's care, or that they had referred to other

agencies, and less than a quarter of participants documented if there was any history of violence or family violence in the medical notes. This is reinforced in the literature which describes how medical records had omissions or errors around injuries, and NFS emergency triage codes were often omitted, incorrectly recorded or limited (Kivelä et al., 2019). Furthermore, when treatment has been given, successful recovery depends on effective discharge instructions and documentation. Kivelä et al. (2019) described how only one patient in their study received discharge guidelines around violence and safety. This is important when our study showed no health professionals identified mild traumatic brain injury as a consequence or sign of strangulation, nor did they identify that 50% of people may have no visible injuries after being strangled so discharge planning around these points was non-existent. The consequences of what happens if traumatic head injuries are not followed up are significant as it is shown to be a leading cause of mortality and morbidity (Valera & Kucyi, 2017) highlighting the need for effective discharge information. Consequently, health professionals do recognize and have described the need for more discharge education resources and planning around NFS and traumatic brain injury (Jacob et al., 2020; Patch et al., 2021).

Moreover, with more people requiring support for mental health conditions such as PTSD, depression, anxiety, substance use and family violence rates, health professionals need to be able to detect NFS early to prevent long-term ongoing health complications, particularly mental health complications when the victims are exposed to such behaviours repeatedly.

Current research in NFS is looking at functional magnetic resonance imaging and blood biomarkers to determine the actual long-term health consequences of NFS (Hou et al., 2023; Huibregtse et al., 2022); however, while this research is promising and interesting if health professionals are not able to recognize or assess for NFS strangulation early or properly, no amount of long-term health consequences will be recognized and managed either.

Sadler (2002) says health professionals who work in emergency or acute care are more likely to find legal situations a cause of considerable uncertainty and anxiety. This is true in the NZ context. Spangaro (2017) describes how NZ healthcare professionals are concerned with addressing the issue of abuse due to fear of 'opening Pandora's box', fear of offending, a sense of powerlessness, time constraints and privacy issues. The American Nurses Association and Sadler (2002) both highlight a lack of education and clinical preparation, in both undergraduate and postgraduate education, on dealing with violence and legal investigations. This is also true in NZ nursing education, where education and clinical preparation on violence and legal investigations are limited in both undergraduate and postgraduate nursing programs.

Another barrier to nurses screening patients for NFS is the nurse's own experience of the issue. If one in every three females in NZ is affected by family violence (King et al., 2023), the predominantly female nursing workforce is likely to include a significant number who are themselves victims of abuse (Davis, 2007). It is essential that the nursing profession take the guesswork out of patient care for emergency department nurses (and other frontline healthcare professionals), to ensure appropriate and effective interventions, justice and professional accountability.

It is time that if we want to improve awareness and responses to strangulation, then education and validated screening and assessment tools are needed to prepare and provide the best medical and legal care for patients who present with NFS. There is a significant need for an NFS education package and screening and assessment tools to support our frontline health professionals in assessing and treating NFS.

Currently, NFS patients are not being sufficiently addressed. This study has clearly shown that Frontline health professionals lack the confidence, skills, education and tools to meet their medical obligations to NFS patients and to fulfil their duty to 'do no harm'. Tertiary education needs to offer training around NFS and support frontline health professionals and community and emergency departments to develop screening tools, protocols and pathways to liaise with law enforcement, and to ensure patients' legal rights and the needs of justice are met.

7 | STRENGTHS AND LIMITATIONS

One of the strengths of this study was that it provided the opportunity to identify health professional's understanding of NFS and to explore their knowledge of, need for and support for, a screening and assessment tool to support health delivery. Despite its common occurrence and serious implications, this topic has received limited investigation in New Zealand. Another strength of this study was that the research was conducted during the COVID pandemic when family violence and strangulation were prominent, meaning this study provided a snapshot into the clinical practice of Frontline health professionals' usual practice when dealing with NFS victims.

This study is limited by the number of frontline participants who chose to respond, which may be attributed to the workload and shortages of frontline health professionals during the COVID-19 pandemic. Many frontline professionals at the time reported being physically and emotionally exhausted which may explain the lack of, or incomplete responses. However, all participants in this study volunteered and might, be motivated or have a specific interest in the research topic. As such, their experiences and understanding might not fully mirror those of all frontline health professionals, so caution is needed about the generalizability of the study's findings.

Quantitative deductive surveys using content analysis were also a limitation of this study. The reliance on predetermined categories in deductive content analysis may introduce bias into the analysis process. For instance, if researchers interpret the data to fit their predetermined categories, they risk overlooking important perspectives or misinterpreting the responses. However, as the study aimed to explore frontline health professionals' understanding of NFS and their need for, and support for, a comprehensive education and screening resource package to support health delivery-specific predetermined categories were required.

8 | IMPLEMENTATIONS FOR CLINICAL PRACTICE

Clinical implications of the findings suggest the need for education and training regarding the effects of strangulation including the need for standardized NFS screening and assessment tools for people sustaining NFS-related injuries. These findings show that frontline health professionals have not had adequate training to understand all of the signs and symptoms and subsequent consequences of strangulation and because there are currently no validated tools specifically designed to detect NFS in NZ, frontline health professionals fail to provide the right treatment to people who have experienced NFS. Therefore, health services must have knowledge and resources to guide recognition and response to non-fatal strangulation in clinical settings to change health outcomes and save lives.

9 | CONCLUSION

Violence and strangulation are a significant health concern and New Zealand has among the highest rates of family violence in the world. Currently, frontline health services lack validated screening tools to support frontline health personnel in caring for and treating the victims of NFS. This qualitative research on NZ frontline health professionals' understanding of NFS demonstrated that the majority of health professionals do not ask about strangulation routinely, they are not aware of the health consequences such as mild traumatic brain injury, they do not routinely document the different agencies they have referred to or are involved in the support of the person who experienced NFS, and they had received no formal education or professional development on NFS to guide clinical practice. This study also identified that over half of all the participants wanted a more comprehensive screening package to guide their clinical practice. The importance of accurately identifying and medically managing the care of those who have survived strangulation is vital to preventing or minimizing long-term morbidity and mortality. Building knowledge and skill in the health workforce will allow for sustainable best practices aligned with robust public policy while reducing long-term morbidity and mortality to the wider public all while assisting the course of justice.

AUTHOR CONTRIBUTIONS

Andrea Donaldson: Conceptualization, methodology, investigation, formal analysis, writing – original draft and review/editing. Akisi Ravono and Emily Hurren: Conceptualization, methodology, formal analysis, writing – original draft and review/editing. Clare Harvey, Adele Baldwin and Bernedette Solomon: Conceptualization, methodology, review/editing. All the authors read and approved the final manuscript.

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CONFLICT OF INTEREST STATEMENT

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

PEER REVIEW

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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ENDNOTE

[i] Medical Sexual Assault Clinicians Aotearoa (MEDSAC) is the acknowledged Aotearoa New Zealand expert body in sexual assault/abuse. It is recognized as such by the Ministry of Health, Accident Compensation Corporation (ACC) and New Zealand Police, as well as by the Health and Disability Commissioner and international bodies such as the World Health Organization.

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APPENDIX 1

NFS Questionnaire

1. How often have you been assessed for non-fatal strangulation in the course of your duties as a first responder? Never, Rarely, Sometimes, Often, Always.
2. What professional development or education have you undertaken related to non-fatal strangulation? Please explain.
3. How well prepared are you to assess and respond to non-fatal strangulation? Not well at all, Slightly well, Moderately well, Very well, Extremely well.
4. When would you assess for strangulation? Please explain.
5. What signs and symptoms (if any) do you identify with non-fatal strangulation and would prompt you to assess for non-fatal strangulation?
6. Do you use validated non-fatal strangulation assessment tools? Yes/no please explain your answer/name assessment tools.
7. What information would you document in the patients' files? Please explain.
8. What referrals would you make after doing the assessment? Please explain.
9. Are there particular circumstances or characteristics that make it particularly challenging in recognizing or responding to non-fatal strangulation? Please explain/describe.
10. Do you see a need for a more comprehensive non-fatal strangulation package to guide recognition and response to non-fatal strangulation? Definitely, Probably, Possibly, probably not, definitely not. Please explain.
11. Anything further you want to add?
12. What is your age?
13. What is your gender?
14. What is your current profession?
15. What area of practice do you work in?
16. How many years have you been working in this field?

If you wish to receive a copy of the findings at the completion of this project, please enter your email address below.