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Injuries of Women Surviving Intimate Partner Strangulation and Subsequent Emergency Health Care Seeking: An Integrative Evidence Review

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Abstract

Introduction—Non-fatal strangulation by a current or former intimate partner is a distinct mechanism of violence with potential for severe injury or death. As non-fatal strangulation has gained recognition for its significant medical and legal implications, there have been multiple calls for nursing and other health care providers to improve practices related to strangulation screening, assessment and treatment. Given U.S. estimates suggest higher prevalence in women than men, this integrative evidence review examines existing literature related to women's injuries, and their subsequent experiences in seeking health care, after surviving intimate partner strangulation.

Methods—Following PRISMA guidelines, five electronic databases were searched, ultimately resulting in 13 articles for inclusion.

Results—Overall, non-fatal intimate partner strangulation was associated with multiple negative physical and psychological outcomes for women, though only 5–69% of strangled women sought health care, in studies reporting this finding.

Discussion—Non-probability sampling, participant self-reports, and relatively small sample sizes were frequently encountered limitations across studies. Heterogeneity of women's ages and race/ethnicities also limited comparisons. However, existing research provides a beginning framework to support practice and future inquiry.

Keywords

strangulation; intimate partner; violence; women's health

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Introduction

Being strangled by a current or former intimate partner is a very real threat to health and life for significant numbers of women. Strangulation, defined as external pressure to the neck closing blood vessels and/or air passages and depriving one of oxygen,¹ has been equated to the torture of drowning and water boarding.² Non-fatal intimate partner strangulation (NF-IPS) is increasingly being acknowledged as a serious risk factor for negative health outcomes like carotid artery dissection,^{3–6} stroke,^{4,5,7} seizures,⁴ PTSD,^{6,8} anxiety and depression,^{6–9} as well as future lethal violence, heightening women's risk by 7-fold for being murdered by a partner.¹⁰ In the most recent National Intimate Partner and Sexual Violence Survey (NISVS),¹¹ approximately 10% of female respondents report surviving IPS at least once in their lifetimes, extrapolating to ~11 million U.S. adult women. The estimated prevalence ratio in NISVS shows NF-IPS to be 13 times higher in women than men, suggesting an extreme gender disparity.

As NF-IPS has gained recognition for its significant medical and legal implications, there have been multiple calls for health care providers to improve practices related to strangulation screening, assessment (including diagnosis) and treatment.^{12–14} At least one clinical screening tool exists to aid in identifying victims of intimate partner strangulation;¹⁵ however, clinicians often struggle with these “walking and talking” victims¹⁶ – patients who do not appear to meet criteria for further injury evaluation and treatment, and who are usually unaware of their true risk of either medical complications or of homicide by their partner. To inform emergency nursing practice and future research, a review of existing literature was conducted focusing on: 1) women's decisions to seek care; 2) their experiences with the health care system following NF-IPS; and 3) injuries and health consequences identified following NF-IPS of women. This review is in contrast to others either concentrating on NF-IPS prevalence,² recognition and documentation,¹² or more broadly on “areas of criminology, forensic science, law and medicine”¹⁷ related to strangulation. Understanding NF-IPS patients' expectations and experiences, along with identified health consequences, will guide research efforts to help support future patient-centered and clinically effective approaches to diagnosis, treatment, referral and community partnership decisions.

Methods

In accordance with Preferred Reporting Items for Systematic Reviews and Meta- Analyses (PRISMA) Statement guidelines,¹⁸ an integrative evidence review was performed of English language articles to identify reports of findings or results of intimate partner non-fatal strangulation of adult women. Five electronic databases (CINAHL, Cochrane Library, Embase, Proquest and PubMed) were searched using the terms: “spouse abuse,” “domestic violence,” “battered women,” “intimate partner violence,” “battered woman,” “spousal abuse,” “date rape,” “neck injuries,” “airway obstruction,” “strangle,” “strangulation,” “choke,” “chokes,” “choked,” “choking,” and “throat injury.” Combination searches of these terms were also completed.

During initial exploration, the search was not limited by year to aid in identification of classic works, and when none were identified, later restricted to the years 2000–2015 to provide the most current literature. Hand searches of reference lists were also completed. Published dissertations were searched for inclusion. To be included, publications also must have included both: 1) a sample of women who experienced NF-IPS, and 2) a finding related to women's subsequent decision to seek health care, interactions with the health care system, or health consequences of intimate partner strangulation. Although understood not to be categorized as traditional research, case reports were included to help ground the discussion in real injury findings and supplement the sparse literature on this topic. Despite efforts to identify studies including only female victims of NF-IPS, the limited number of available articles necessitated inclusion of two studies that did not disaggregate mixed sex samples; each only included one male participant.^{19,20} Studies were excluded if they could not be found in a full text English format. Other exclusion criteria included publications reporting non-fatal strangulation injuries of only non-intimate partners or fatal IPS.

Results

A total of 236 titles were identified on initial search and an additional 120 during hand searches of reference lists. After removing duplicates, 207 unique records remained and, after title and available abstract evaluation, 157 were removed as they did not meet either of the aims of this review, and 50 remained for full text review. An additional 37 were excluded during full text review (see Figure 1), with 13 meeting criteria for inclusion: 8 descriptive studies (5 quantitative,^{8,9,19–21} 2 qualitative,^{6,7} and 1 mixed methods²²), as well as five case reports.^{3–5,23,24}

Sampling and Sample Characteristics

Overall, convenience sampling was the most common method, and was used by six of the 13 studies.^{8,9,19–22} Purposive approaches were employed by both qualitative studies.^{6,7} Locations for obtaining samples included domestic violence shelters or other agencies,^{6–9} police or legal settings,^{21,22} and medical centers.^{3–5,8,9,19,20,23,24} Sample sizes ranged from 1–4 in case reports,^{3–5,23,24} quantitative from 62⁹ to 300,²¹ and qualitative from 13 to 17 participants.^{6,7} Two of the studies explicitly included Spanish speaking participants.^{8,9}

Age ranges were highly variable across studies three of which spanned early to mid-adulthood.^{6,7,22} One study from a regional clinical forensic program included women into their 60s.²⁰ Two studies reported inclusion criteria of 18 years or older, but did not report actual ages of their final samples.^{8,9} Similarly, one sample was obtained from a clinical program offering services to those 13 years and older, but no age range was provided for the sample.¹⁹ Single case reports discussed assessments and interventions for women spanning ages 24–43.^{3–5,23,24}

Some studies included racial/ethnic characteristics of the study sample, though overall ranges were very wide, and there were no discussions regarding whether the proportions of racial/ethnic groups were consistent with the general population from which the samples were taken. Proportions of Black/African American participants ranged from 16–82%;

White/Caucasian from 12–69%; and Hispanic/Latina 2–46%.^{6,7,9,19,20,22} However, not all authors reported this data.^{3–5,8,21,23,24}

Injuries and Health Consequences of Intimate Partner Strangulation

Existing literature about women seeking medical care after NF-IPS suggests it is a common form of abuse tactic with potential for severe health outcomes (see Table 1). Manual strangulation was noted as the most common method.^{9,19–21} Unaided visualization of injuries varied, from 7% of 172 cases from a forensic nurse examiner program affiliated with an urban emergency department,¹⁹ to 50% (n=149) in a sample of 300 cases submitted by police for prosecution,²¹ to 85% of cases in a sample of 102 patients evaluated in a community setting by forensic clinicians.²⁰ Interestingly, in a primarily African-American sample, (n=118/172, 69%) visualization of findings suggesting potential injuries was noted in 98% of the cases after using an alternate light source,¹⁹ whereby Shields and colleagues sample was 62% white (n=63/102),²⁰ suggesting injuries may be more difficult to see unaided in darker skin tones.

Multiple physical injuries were reported across studies. Commonalities, compiled in Table 1, included injuries to the skin/soft tissues, head/neck, and neurological, vascular and respiratory systems. In the one study reporting strangulation event counts, women who endured 2–5 strangulation events reported significantly more memory loss, tinnitus and voice changes within two weeks of the attack compared to those sustaining a single event, whereas those reporting more than five strangulations noted significantly more pain, scratches, red linear marks, sore throat, voice changes, dizziness, tinnitus, weakness, and nightmares than those with a single episode.⁸

Five case reports^{3–5,23,24} described a total of 7 women reporting NF-IPS and subsequent injuries. Five of these women^{3–5} were found to have significant vascular and neurological injuries such as carotid artery dissection, occlusion, thrombosis and/or stroke. In one instance,³ the patient was discharged from the ED after a normal clinical exam but returned 2 days later with severe headache. Subsequent imaging found bilateral common carotid dissection and stenosis. Three other cases revealed delays in strangulation to symptom development (3 months–1 year) and symptom development to treatment (1 day–3 months).⁵ Additionally, serious acute and long-term mental health symptoms were similarly described across studies, such as anxiety and depression,^{6–9,22} suicidal ideation,^{7–9} PTSD,^{6,8} and nightmares and insomnia.^{6–9}

Deciding to Seek Help within the Healthcare System

Present studies also suggest women are reluctant to seek health care after being strangled. The proportion of women seeking care among those in their sample was noted by 5 of the 8 non-case report studies, ranging from 5%–69%.^{7–9,20,21} Strack and colleagues reported approximately 5% of their sample of 300 NF-IPS cases submitted for prosecution sought medical care within 48 hours of strangulation, and when they did, it was generally due to pain, voice changes, or difficulty breathing or swallowing.²¹ Injury documentation by medical staff was noted to be considerably more robust than police reports and, thus, helpful for prosecutors.²¹ Smith and team also reported low proportions of care-seeking in their

sample of 101 women: 17.5% of single strangulation victims, 24.4% of those strangled 2–5 times, and 39.1% of those strangled more than 5 times.⁸

Multiple studies reported women's non-disclosure of mechanism of injury or minimization of injuries. A qualitative study of 17 women's perceptions and experiences after NF-IPS reported less than half sought health care assistance, and half of those seeking care did not disclose the mechanism of injury nor were asked, leading to participant-described misdiagnoses and inappropriate treatment plans.⁷ One case study noted a patient initially reported her injuries had occurred in an accident.²³ Two other studies also reported women "lied" to medical personnel.^{6,20} Minimization of injury was described by one strangled woman in a community sample. She did not seek care, stating her "...injuries weren't, like, serious...I went unconscious, [but] then I came back to consciousness."²²

Women's Experiences with Health Care

Those receiving care after NF-IPS gave mixed reviews, from perceptions of staff indifference to truly helpful encounters.⁷ Women not seeking care reported various reasons: wanting a safe place first, not wanting to share such a personal experience, an abuser present in the room during the visit, and feelings of futility.⁷ One study reported women's relative satisfaction with health care responses, but noted service interventions including medical support were time-limited and ended abruptly, leaving women feeling alone and unsupported.²² Two studies noted women's positive perceptions of helpful health care interaction which included: being asked if they want help, assistance with safe relocation, education on strangulation-specific risk, and knowing hospitals were a place to seek help.^{6,7}

Discussion

While a growing number of prevalence estimates suggest strangulation is a common phenomenon experienced by women in abusive relationships,^{2,11} data regarding health care interactions are extremely sparse. Help-seeking following intimate partner strangulation varies widely, with many women never accessing health care services. This may limit the representativeness of existing knowledge of short- and long-term health consequences across this population. In most studies, identification of women who had been strangled was restricted to those who sought services (at a hospital, domestic violence program, police department, etc.) or to those reporting an incident after the fact using survey methods. While only women who obtained assistance of some type (e.g. law enforcement, health care, shelter) were included, one study reporting only 5% of women sought medical care following a single incident of strangulation²¹ suggests service-seeking samples may be including more severely injured women, thus overestimating prevalence within the entire population of abused women but also underestimating negative outcomes among those never assessed or treated. Not seeking care may be a function of underestimating potential injury or risk, fear of retaliatory violence from their intimate partner, attempting to protect an abuser, or lack of confidence in the healthcare team's ability to provide safety and help.⁷

Limitations

Identified literature was also constrained by study design. As strangulation is an emerging topic of interest among researchers studying intimate partner violence, the studies identified were primarily observational and descriptive in nature.^{8,9,19–22} The retrospective nature of this data presents opportunities for recall bias^{6–9,22} and the degree to which traumatic experiences may have affected women's memory or interactions with health care staff was not explored. None of the studies presented health-related consequences prospectively or longitudinally.

Potential measurement biases exist due to the necessary reliance on self-report of strangulation events. Joshi and colleagues noted women associated the term "strangulation" with use of a cord or other ligature around the neck, whereas "choking" was thought to mean the use of hands or arms used to apply force to the neck,⁷ suggesting potential for threats to study validity, and clinical diagnosis, if behavioral definitions are not specified and explained.

Several of the studies also relied on women's self-report of physical injuries and symptoms.^{6–9,22} Women did not immediately identify the risk to themselves and their health as a result of strangulation attempts, but later identified a wide range of negative health symptoms they considered related to strangulation.^{7,8} Current cross-sectional literature does not clarify whether these health consequences reported by women are associated with or caused by strangulation, and it is unclear how many of the symptoms developed immediately after the event versus at some point days or weeks later. Although repeated strangulations did increase rates of care-seeking, this may also have been because the severity, symptoms and sequelae increased with multiple episodes.

Seven included studies presented health care provider descriptions of injuries;^{3–5,19,20,23,24} however, they all reported results from individual or program-based clinical assessment. The high proportion of case reports included in the review provides examples of possible presentations, clinical courses and outcomes, but are necessarily limited, and cannot be generalized to the larger population of women surviving NF-IPS. Other studies reviewed did not provide such rich descriptions, limiting our knowledge of injuries. Additionally, individual case study or small sample reports tend to be more likely to include extreme presentations with positive or negative outcomes, and are less likely to provide information on long-term NF-IPS health consequences, as the longest time reported from treatment to follow up was 20 months.⁵

Implications for Emergency Nursing Practice

While many unanswered questions regarding prevalence and associated characteristics of NF-IPS remain, emergency nursing practice implications to consider resulting from this review include:

- Patient presentations and chief complaints may vary widely. Serious injuries and death have occurred with no overt external trauma. Noting and communicating subtle findings can be critical to the ED plan of care.

- External findings may be even more challenging to identify in women of color. Innovative approaches such as ALS show promise for future improved detection.
- Women may be unaware of the risks associated with strangulation, minimize strangulation, or be fearful to share abuse information. Asking behavior-specific questions can help decrease ambiguity (e.g. pressure on the neck versus “strangled” or “choked”). Patient privacy during assessments is also critical.
- Objective, detailed documentation of reported mechanism of injury, symptoms, and assessment findings can be extremely helpful to future legal recourse for the patient. Best practice recommendations for clinicians are available.^{13,25,26}
- Protocols for screening and assessment of strangulation in various care environments are emerging that can be helpful to diagnosis, care plans and referrals. Further development and testing, including leveraging information resources (e.g. electronic medical records), using ultrasound and other imaging modalities^{3–5} and use of emerging technologies (e.g. ALS)^{19,21} is warranted.
- Strangulation should be considered and ruled-out in younger women presenting with strokes or stroke-like symptoms.^{3,5} Delayed presentations are also possible.
- Potential for brain injury and memory loss should be considered in patient assessments and care plans.⁶
- Educational programs for health care staff may be helpful, including content on strangulation risk assessment and possible minimization^{7,9,20,22,23} as well as documentation best practices. These programs should be tested and barriers to the sustainability of screening tools and interventions in various practice settings identified and addressed.^{8,19,21,24}

Conclusions

Much of the extant literature on NF-IPS outcomes includes case reports and descriptive studies with relatively small sample sizes. Current studies are limited in their ability to provide a broader description of who presents for care to an ED and is subsequently recognized and documented as having been strangled. Additional knowledge is needed on potential risk factors contributing to difficulties recognizing and diagnosing NF-IPS, which can significantly restrict care and ongoing support for this vulnerable population. None of the studies included in this review examined women’s understanding of their diagnosis or the risk strangulation may have to their short and long-term health. Though limited, this literature provides a beginning framework for future NF-IPS inquiry to support emergency nurses and ED clinical team practice. Additionally, practice suggestions include having a low threshold for suspicion of NF-IPS, recognizing lack of external injury does not exclude serious underlying injury, and assessing for and documenting subtle, nuanced findings. Further NF-IPS research, including use of more robust study designs, sampling strategies and consistent measurement techniques, is needed to support the scientific base for screening and treatment protocols and to better understand long-term health consequences of this form of violence.

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Contribution to Emergency Nursing Practice

- Prevalence estimates suggest non-fatal intimate partner strangulation (NF-IPS) is higher in women.
- Injuries after NF-IPS may be subtle, covert or minimized, yet can result in serious health outcomes.
- Screening, assessment and objective documentation of findings by emergency nurses can improve recognition of NF-IPS, support appropriate care plans and referrals, and help future legal recourse.
- Additional research is needed to test screening, imaging and treatment protocols, use of emerging technology to enhance assessments, and long-term health outcomes associated with NF-IPS.

Modified from: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(6): e1000097. doi:10.1371/journal.pmed1000097

Figure 1.
PRISMA Diagram

Table 1
NF-IPS Reported Physical Examination Findings, Signs and Symptoms Reported in NF-IPS Literature

1 st Author (Year)	Sample (n), Setting	Skin & Soft Tissue	Head & Neck	Neurological & Cardiovascular	Other Injuries & Symptoms
Case Reports					
Blereau ²³ (2009)	1; hospital (ED) (United States)	ecchymosis (to neck, trunk, and extremities)	nasal bone fracture; neck ecchymosis; subconjunctival hemorrhage;	dizziness; headache; LOC;	generalized body pain; nausea
Clarot ³ (2004)	2 (one NF-IPS); hospital (France)	NR	NR	carotid artery dissection	NR
Funke ²⁴ (2003)	1; hospital (ED, labor and delivery) (United States)	clavicle ecchymosis; facial and extremity contusions and abrasions; human bite wound and laceration to ear; neck abrasions	difficulty swallowing; eyelid drooping; hoarseness; neck pain; swelling in throat; sore throat; subconjunctival hemorrhage	headache; lightheadedness; LOC	difficulty breathing
Le Blanc-Louvy ⁴ 2013	3 (one NF-IPS); hospital (France)	bruising and "external marks" to neck	NR	Acute: Broca-like aphasia; carotid artery thrombosis due to dissection of ICA; facial paralysis; hand and foot dysesthesia; headache; hemiplegia of face, arm, and leg; homonymous hemianopsia; stroke Persistent: aphasia; apraxia; homonymous hemianopsia; seizures; spastic hemiplegia	NR
Malek ⁵ 2000	3; hospital (United States)	NR	NR	coma; dysarthria; embolic stroke; hand and arm paresis and numbness; ruptured basilar artery aneurysm; subarachnoid hemorrhage; watershed ischemic stroke	NR
Qualitative Studies					
Joshi ⁷ (2012)	17, DV shelter (United States)	NR	difficulty swallowing; pain, abrasions, and swelling to the neck; voice changes	LOC; stroke; tinnitus; weakness	anxiety; depression; heightened and persistent fear; insomnia; nightmares; suicidal ideation
Vella ⁶ (2013)	13, community-based family justice center (United States)	NR	throat pain; voice changes	ICA dissection; LOC	anxiety; depression; inability to concentrate; insomnia, learning deficits; memory loss; nightmares; PTSD; uncontrollable shaking
Mixed Methods					
Farr ²² (2002)	30 police reports (11 NF-IPS), 8 phone interviews (United States)		broken jaw; periorbital ecchymosis	concussion; LOC	broken ribs

1 st Author (Year)	Sample (n), Setting	Skin & Soft Tissue	Head & Neck	Neurological & Cardiovascular	Other Injuries & Symptoms
Quantitative Studies					
Holbrook ¹⁹ (2013)	172 (171 female, 1 male); hospital-based forensic nursing program (United States)	“intradermal injuries”	petechial hemorrhage to eyes, ears or intraorally	LOC; near LOC	NR
Shields ²⁰ (2010)	102 (101 females, 1 male); medical examiner's office (United States)	NR	difficulty speaking; difficulty swallowing; hoarseness; intraoral injuries; neck pain; subconjunctival hemorrhages	LOC; dizziness	difficulty breathing
Smith ⁸ 2001	101; hospital-based DV programs & DV shelters (United States)	edema; neck abrasions	difficulty swallowing; sore throat; voice changes	dizziness; eyelid droop; weakness; facial droop; headache; lightheadedness; loss of sensation; muscle spasms; paralysis; tinnitus; vision changes	anxiety; depression; insomnia; memory loss; nightmares; personality changes; PTSD; suicidal ideation
Strack ²¹ 2001	300; prosecutors' office (United States)	bruising behind ears; ear pain; petechial hemorrhage to the neck or eyes; redness, cuts, abrasions and bruising to neck	difficulty swallowing; hoarseness; sore throat; subconjunctival hemorrhage; voice changes	anisocoria; headaches; LOC; lightheadedness; near LOC	breathing changes; cough; difficulty moving neck; difficulty walking; fecal incontinence; hyperventilation; memory loss; nausea; pain (not specified); uncontrollable shaking; vomiting
Wilbur ⁹ 2001	62; hospital-based DV programs & DV shelters (United States)	neck abrasions; petechial hemorrhage; rope or cord burns	dysphagia; neck pain; neck swelling; nose bleed; sore throat; voice change	dizziness; eye droop; facial droop; LOC; numbness; paralysis; tinnitus; unilateral weakness; vision changes	acid reflux; anxiety; depression; difficulty breathing; insomnia; memory problems; miscarriage; nightmares; suicidal ideation; urinary incontinence

Notes: DV = domestic violence; ICA = internal carotid artery; LOC = loss of consciousness; NR = not reported