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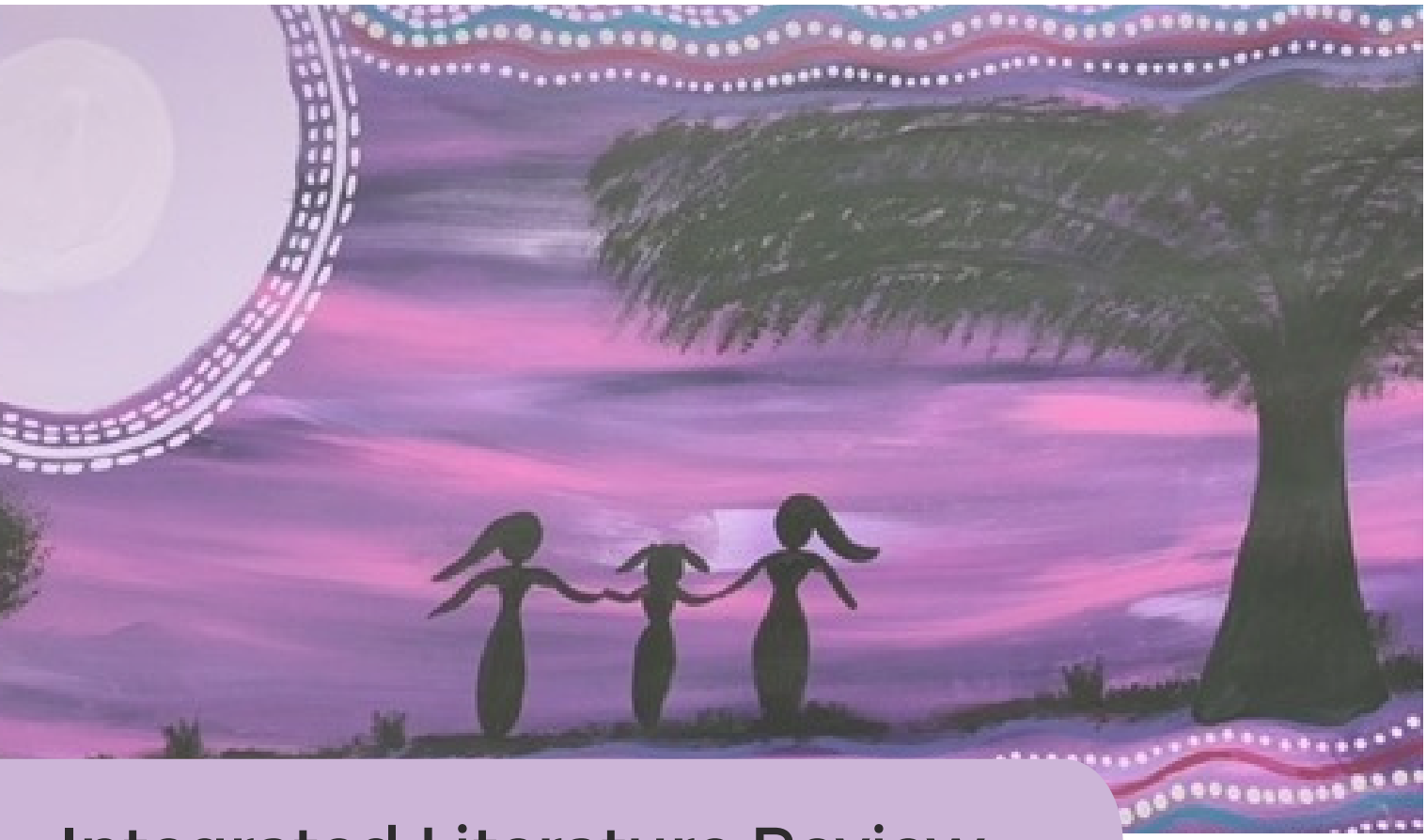

Integrated Literature Review

Non-fatal strangulation: A highly lethal form of gendered violence

Content/ Trigger Warning

This review contains material that can be confronting and disturbing. Sometimes words can cause sadness or distress, or trigger traumatic memories for people, particularly survivors of past abuse or violence. For some people, these responses can be overwhelming. If you need to talk to someone, support is available 24 hours a day through the following support services:

1800RESPECT:	1800 737 732
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Acknowledgements

Acknowledgement of Country

We proudly acknowledge the Traditional Owners of the lands across Queensland and other Australian states and territories and pay our respects to all First Nations Australians. We acknowledge that sovereignty over this land was never ceded.

Acknowledgement of Red Rose Foundation

We acknowledge QCDFVR's research partnership with Red Rose Foundation, through a Memorandum of Understanding, with the partnership forming the basis of the study – The voices of women impacted by non-fatal strangulation (Summary Report – key themes). This integrated literature review has been produced in conjunction with the study.

Artwork on cover

The artwork on the cover was created by talented artist Kylie Hill. Kylie is a proud Kalkadoon and Waanyi woman from Mount Isa in far north Queensland. Kylie has called Ipswich home for the past 30 years.
https://indigenousartcode.org/member/kylie-hill/

This integrated literature review was developed to support *The voices of women impacted by non-fatal strangulation (Summary Report - key themes).*

Introduction

Strangulation is a highly lethal form of gendered violence mainly perpetrated by men against women, particularly in the context of intimate partner violence (Glass et al., 2008; Gwinn et al, 2014; Joshi et al., 2012; Mcquown et al., 2016; Messing et al., 2018; Reckdenwald et al., 2019; Strack et al., 2001; Thomas et al., 2014; Wilbur et al., 2001). Intimate partner violence, referred to as 'domestic and family violence' (DFV) in this review, is "an overt or subtle expression of a power imbalance, resulting in one person living in fear of another and [it] usually involves an ongoing pattern of abuse characterised by coercive and controlling behaviours" (Toivonen & Backhouse, 2018, p. 5). Aboriginal and Torres Strait Islander peoples prefer the use of the term 'family violence' to describe the violence that can occur within or between families in their communities (Toivonen & Backhouse, 2018).

Domestic and family violence can be perpetrated by both men and women, but it is mainly perpetrated by men against women (Australian Institute of Health and Welfare (AIHW), 2018). At least one in three women experience DFV in the form of physical, sexual, emotional, psychological, spiritual, and/or financial abuse (AIHW, 2018; World Health Organisation (WHO), 2013). Domestic and family violence can often cause serious physical and mental health issues, social isolation, and economic stresses (Zieman et al., 2017).

Strangulation

Strangulation is often incorrectly called 'choking' (Turkel, 2007) - strangulation refers to external pressure being applied to the neck, whereas choking occurs when there is an internal airway obstruction (Anderson, 2016; Braamcamp de Mancellos, 2021; Douglas & Fitzgerald, 2014; Gwinn et al., 2014; Turkel, 2007). External pressure to the neck can be achieved through "manual pressure (throttling with hands, forearm, kneeling/foot on the neck), sleeper hold (elbow bend compression or headlock), ligature/garroting (necklace, clothing, cord, belt), neck compression (object pressed against the neck) and hanging" (De Boos, 2019, p. 302). Very little pressure is required to cause the loss of consciousness in seconds, or brain death in minutes (Strack & McClane, 2001).

Men have the capacity to exert 80 pounds per square inch (PSI) and women 40 PSI (Smock, 2014). It only takes four PSI on the jugular veins (Smock, 2014) or 11 PSI on both carotid arteries for less than 10 seconds to cause a victim to become unconscious and experience convulsions (Sauvageau et al., 2012). Brain damage can occur after three minutes and death after four or five minutes (Carlson, 2014).

Although women are physically capable of strangling a man, as it requires less pressure to occlude the jugular vein that it does to open a ring-top can of drink

(Green, 2017), strangulation is mainly perpetrated by men against women (Douglas & Fitzgerald, 2014; Gwinn et al., 2014; Pritchard et al., 2018; Thomas et al., 2014). A review of 300 cases of strangulation from the San Diego City Attorney's Office revealed that 298 cases involved a male perpetrator and a female victim (Strack et al., 2001); and a review of strangulation cases by White and Majeed-Ariss (2018) found that in the 70 cases under examination, 68 involved female victims.

Strangulation in the context of domestic and family violence

A study by Glass et al. (2008) determined that strangulation was present in 57.6% to 68% of DFV incidents, while Wilbur et al. (2001) found that 46% of victim/survivors of DFV had experienced between three and 20 incidents of non-fatal strangulation (NFS). A review of domestic violence/sexual assault cases in the United States found strangulation was present in 23% of cases (Mcquown et al., 2016). Similar results were found in a review of sexual assault cases in the United Kingdom - one in five victim/survivors of sexual assault reported NFS – with sexual assault often overlapping with DFV (White & Majeed-Ariss, 2018). Sorenson et al.'s (2014) review of data from North America and Europe found that between three percent and 9.7% of all women experience NFS by an intimate partner over their life course.

The "prevalence of non-fatal strangulation in the Australian general population is not known" (De Boos, 2019, p. 1); however, Douglas and Fitzgerald (2014) conducted a review of court files in two Queensland Magistrates Courts - Brisbane and Beenleigh – from 2008 to 2010. The files included 656 cross application files from 328 heterosexual couples (Douglas & Fitzgerald, 2014, p. 245). Allegations of strangulation were made by 6.4% (n=42) of the aggrieved, with 90% (n=38) of these allegations made by women against men (Douglas & Fitzgerald, 2014, p. 246). First Nations women are overrepresented as victims of NFS and brain injuries – they are 70% more likely to acquire a brain injury than non-Indigenous women (Farrugia et al., 2020). The vulnerabilities of First Nations women are influenced by the contexts of "colonisation, genocide, forced removal of Aboriginal people from their lands, loss of culture, the Stolen Generations, on-going racism, and inter-generational trauma" (Farrugia et al., 2020, p. 19).

In 2016, a study of 1064 women who presented to a sexual assault service in Western Australia revealed that 7.4% (n=79) of these women had experienced NFS and 23% of women who were sexually assaulted by an intimate partner had experienced NFS (Zilkens et al., 2016, p. 1). This prevalence of NFS increased to 33.9% for women who had been sexually assaulted by an intimate partner and were aged between 30 and 39 years (Zilkens et al., 2016, p. 1). In 2019, a South-Western Sydney Local Health District Roundtable was convened to explore acquired brain injuries in victim/survivors of DFV (Farrugia et al., 2020). At this Roundtable, one service provider had received 46 disclosures of strangulation between 2016 and 2019, with "eight disclosed to police and four disclosed to hospitals" (Farrugia et al., 2020, p. 4).

Strangulation and homicide

Men use strangulation to gain power and control over their intimate partners

(De Boos, 2019; Joshie et al., 2012; Pritchard et al., 2017; Sorenson et al., 2014; Thomas et al., 2014; Vella et al., 2017).

Wilbur et al. (2001) found that 88% of victim/survivors of strangulation, experienced other forms of DFV concurrently. Strangulation is used as a "mechanism of coercive control to instill compliance and dependency over time through a pattern of malevolent conduct" (Brady et al., 2021, p.2) – it is also a common cause of "domestic violence-related homicide" (Douglas & Fitzgerald, 2014, p. 231). Non-fatal strangulation is recognised as a "red-flag for future serious abuse and fatality" (Douglas & Fitzgerald, 2014, p. 231).

Men who strangle their intimate partners are "setting the stage", ensuring their victim understands that they "can or will kill" them (Thomas et al., 2014, p. 125). Strangulation is the second most common cause of DFV deaths involving women (Thomas et al., 2014). Dobash et al.'s (2007) research revealed that 37% of men who killed their intimate partner used strangulation. Glass et al. (2008) suggest that victim/survivors of strangulation have a seven-fold increased risk of becoming a victim of an attempted homicide in a subsequent DFV incident with the same perpetrator.

Physical and psychological consequences

Strangulation, no matter how it is perpetrated, "is highly dangerous" (Douglas & Fitzgerald, 2020, p. 2). Some women will die; others will suffer physical and psychological consequences, with the severity of these consequences influenced by the "intensity, duration, and number of [strangulation] episodes" (Braamcamp de Mancellos, 2021, p. 1). For example, victim/survivors who experience two to five episodes are more likely to be diagnosed with significant memory loss and tinnitus (Smith et al., 2001), and those who have been "strangled more than five times report more frequent muscle spasms, tinnitus, dizziness, and weakness on one side of the body" (Cimino et al., 2019, p. 716).

Strack and McClane's (2001) review of 300 cases of strangulation found that 50% of victim/survivors presented with no visible injures, 35% had insignificant visible injures, and only 15% presented with injuries consistent with NFS including: abrasions on their neck; neck pain; difficulty swallowing; a sore throat; changes to vision, hearing or breathing; loss of memory or consciousness; miscarriage; premature birth; and/or anxiety (Braamcamp de Mancellos, 2021, De Boos, 2019; Douglas & Fitzgerald, 2020; Glass et al., 2008; Messing et al., 2018). It is important to note that a woman can acquire a brain injury or die from just one strangulation event (Birchard et al., 2021; Braamcamp de Mancellos, 2021; Cimino et al., 2019; De

Boos, 2019; Glass et al., 2008; Hawley et al., 2001; Kabat & Anderson, 1943; Levack et al., 2009; Spencer & Stith, 2020; Thomas et al., 2014); other victim/survivors can suffer serious "delayed consequences from oxygen deprivation" (Brady et al., 2021, p. 3) such as a stroke or blood clot (Douglas & Fitzgerald, 2020).

Delayed consequences may not emerge for days or weeks after a strangulation episode (Carlson, 2014; Douglas & Fitzgerald, 2020). When the brain is starved of blood and oxygen, different areas of the brain react to different time scales (Birchard et al., 2021). The brain stem and hippocampus are particularly sensitive to a lack of blood flow (Hawley et al., 2001); some cells can survive for days then die, with reports of stroke being delayed for almost two weeks (Levack et al., 2009). Restricted oxygenated blood flow to the brain results in four phases:

- the anaesthetic phase – "the victim goes through tinnitus, photopsia, pain, headaches, and loss of consciousness";
- the convulsive phase – "is similar to an epileptic crisis, starting with tonic seizures followed by clonic seizures";
- the agony phase – "it is possible to observe some involuntary movements, either automatic or reflexive; the heart has isolated and spaced contractions and there is incontinence due to a relaxation of the sphincters"; and
- the terminal phase – "there is cardiorespiratory arrest, areflexia, pupil dilatation, and death" (Vanrell, 2009 & Di Maio, 2001 cited in Braamcamp de Mancellos, 2021, p. 4).

A person who is being strangled can lose consciousness after four to 10 seconds of arterial pressure and have anoxic seizures after six to eight seconds (Kabat & Anderson, 1943); lose bladder control after 15 seconds and bowel control after 30 seconds; and sustain brain stem damage after 20 seconds and brain death after one to six minutes of pressure (De Boos, 2019).

Various studies have identified women's loss of consciousness following strangulation:

- Wilbur et al. (2001) found loss of consciousness in 17% of strangulation cases;
- Malec et al. (2007) reported loss of consciousness in 76% strangulation cases;
- Shields et al. (2010) detailed loss of consciousness in 38% of strangulation cases; and
- Zilkens et al. (2016) recounted loss of consciousness in 8.9% of strangulation cases.

These statistics indicate that many victim/survivors of strangulation have likely acquired a brain injury (Rajaram, 2020; Valera et al., 2003) - "neurological damage, leading to possible cognitive and behavioural changes" along with "the risk of significant psychological trauma" (Birchard et al., 2021, p. 4).

Victim/survivors of strangulation can suffer a range of immediate or delayed neurological symptoms including changes to vision, partial blindness, eyelid droop, facial droop, dizziness, motor speech disorders, changes to voice quality, breathing difficulties, tinnitus, problems with swallowing, limb paralysis/weakness, pain, muscle tremors or spasms, coma, seizures, confusion, nausea, brain injury, and stroke (Birchard et al., 2021; De Boos, 2019; Douglas & Fitzgerald, 2020). Twenty percent of strokes in individuals under 45 years of age are caused by "extra-cranial carotid artery dissection" (Leys et al., 1997 and Lisovoski et al., 1991 cited in De Boos, 2019, p. 303), though "ischamic and watershed strokes have been reported with and without

damage to the carotid artery after manual strangulation" (Malek et al., 2000 and Meel, 2015 cited in De Boos, 2019, pp. 303-304). Some victim/survivors of strangulation continue to experience neurological damage long after the strangulation episode (Birchard et al., 2021; De Boos, 2019).

Women who survive strangulation can also experience cognitive problems including amnesia (De Boos, 2019) and short-term memory loss (Birchard et al., 2021; Douglas & Fitzgerald, 2020; Pritchard et al., 2018). While the terror of facing death can cause psychological trauma, resulting in post-traumatic stress disorder (Birchard et al., 2021; De Boos, 2019; Funk & Schuppel, 2003; Gwinn et al., 2014; Jordan et al., 2020; Shields et al., 2010; McClane et al., 2001). Victim/survivors also report other delayed psychological outcomes such as: "depression, anxiety, suicidality, and nightmares"; "generalised fear and feelings of danger, powerlessness, and vulnerability"; "exacerbation of existing mental health difficulties"; a range of dissociative disorders (Birchard et al., 2021, p. 18); and existential fear (Douglas & Fitzgerald, 2020; Shields et al., 2010; McClane et al., 2001; Zilkens et al., 2016). In a study by Douglas and Fitzgerald (2020), one woman suffered a miscarriage, and another had a premature birth following strangulation, with these outcomes potentially intensifying psychological feelings of despair, anguish, and shame (Adolfsson, 2011).

A study by Thomas et al. (2014) highlights behavioural changes in victim/survivors after a strangulation episode, particularly in relation to power – one woman in the study became more aggressive towards her perpetrator, but generally the women became more compliant and submissive. Victim/survivors of strangulation also tend to self-isolate (Thomas et al., 2014) and many do not seek assistance (Joshi et al., 2012; Pritchard et al., 2018; Ralston et al., 2019); resulting in strangulation episodes being "shrouded in silence" (Dotson, 2011, p. 244). Research by Smith et al. (2001) revealed that only 39% of victim/survivors of strangulation at a refuge sought medical attention, although more than 50% of victim/survivors had experienced multiple strangulation episodes. McClane et al.'s (2001) research revealed that as few as five percent of victim/survivors sought assistance following their strangulation episode.

McLean (2012) suggests the hesitancy to seek medical assistance could be due to a victim/survivor not understanding the serious nature of the strangulation episode because they did not sustain any visible injuries; while Turkel (2007) suggests the use of descriptors such as 'grabbing of the throat' or 'choking' rather than 'strangulation' can minimise a victim/survivor's experience (Turkel, 2007). Consequently, some victim/survivors of strangulation are living with undiagnosed brain injuries that can be impacting on their "quality of life, wellbeing, and capacity

to live independently" (Farrugia et al., 2020, p. 5); whereas other victim/survivors "won't wake up the next morning" (Manne, 2018, p. 2). The responses offered to victim/survivors of NFS can impact on their long-term wellbeing and recovery, however many of these responses are influenced by the victim/survivor's "ethnicity, gender, socio-economic status, and other social categories (such as disability) that play a key role in shaping [their] access to legal systems and healthcare" (Farrugia et al., 2020, p. 21).

Responses to strangulation

Medical responses

Strangulation is not well understood in the medical sector despite its prevalence, and the possibility that victim/survivors can acquire a brain injury or die (Anderson, 2016; Braamcamp de Mancellos, 2021; Gwinn et al., 2014; Strack & Gwinn, 2011; Turkel, 2007). The inconsistency in post-strangulation injury presentations can lead to misdiagnoses or the minimisation of a woman's strangulation experience, leaving her vulnerable to delayed medical crises (Anderson, 2016; Birchard et al., 2021; Strack & Gwinn, 2011). Braamcamp de Mancellos (2021, p. 1) stresses the importance of victim/survivors being accurately identified to ensure they receive appropriate "healthcare" and "measures of protection and prevention" to prevent fatal outcomes. Unfortunately, the medical triage process favours the "visible manifestation of physical trauma over the often-invisible symptoms of acquired brain injury" (Farrugia et al., 2020, p. 4).

A study of 9,355 incidents of DFV by Campbell et al. (2017, p. 7), identified 2,605 victim/survivors of strangulation. Sixty percent of these victim/survivors had visible signs of strangulation such as "bruising, swelling abrasions, [or] subconjunctival hemorrhage" (Campbell et al., 2017, p. 7). Fourteen percent were provided with medical treatment - three percent were provided with first aid on the scene and 11% were taken to hospital (Campbell et al., 2017, p. 7). Eighty-four percent of the victim/survivors had previously been strangled by the perpetrator (Campbell et al., 2017, pp. 13-14). Thirty-one percent of the pregnant DFV victim/survivors in this study had experienced strangulation in their most recent DFV incident, and 17% of these pregnant victim/survivors of strangulation received medical treatment (Campbell et al., 2017, pp. 13-14). Campbell et al.'s (2017) study also found that some victim/survivors of strangulation refuse medical attention.

Monahan (2019) states that victim/survivors of DFV who present at emergency room departments are not routinely screened for a brain injury. Carlson (2014, p. 21) suggests emergency nurses should be alert to any patient who presents following a DFV or sexual assault incident, particularly if they have "marks around the neck or face" or they "report being hit, pushed [or] shoved". Victims of DFV or sexual assault should also be asked by the medical team if they have been "choked" and if they have "a scratchy voice, sore throat, dysphagia, or cough, the index of suspicion should be increased" (Carlson, 2014, p. 21). Even when a victim/survivor identifies as experiencing strangulation their symptoms can still be misdiagnosed, with symptoms sometimes considered stress-related due to the anxiety caused by the episode (Bitzer, 2020).

As previously stated, misdiagnoses can occur due to the lack of "necessary education, training, or resources such as referrals or screening tools" to assist the medical team accurately identify injuries, particularly a brain injury (Bitzer, 2020, p. 2).

The introduction of enhanced screening for women who identify as experiencing DFV could detect possible injuries from a strangulation episode and prevent future violence or fatalities for victim/survivors of strangulation (Cimino et al., 2019). A 2018 study of victim/survivors of DFV presenting at Victorian hospitals revealed that 57% (n = 116) of these victim/survivors had acquired a brain injury, with 14 out of 17 deaths from this group related to a brain injury (Brain Injury Australia, 2018). A medical team can use diagnostic tools such as "chest x-ray, cervical spine x-ray, pharyngoscopy, carotid ultrasound, CT head/neck, and MRI of the neck" to determine internal damage from strangulation (Falkenberg, 2014 cited in Carlson, 2014, p. 22).

When a woman who has been, or is suspected of being, strangled is cleared to leave hospital she needs to be "advised to seek medical care immediately if there is development of any respiratory or neurological symptoms" (Carlson, 2014, p. 22). As well, these victim/survivors should be advised to seek "counselling by a practitioner with an understanding of interpersonal violence" and alerted to the "long-term risks associated with [remaining in] a relationship in which strangulation has occurred" (Carlson, 2014, p. 22). The medical team "should [also] review safety issues and present [the victim/survivor with on-going support] options within the community" (Carlson, 2014, p. 22).

Justice and legal responses

Victim/survivors of strangulation can be denied the justice and legal responses required to hold perpetrators accountable and prevent the escalation of violence in their lives (Anderson, 2016; Braamcamp de Mancellos, 2021). Douglas and Fitzgerald (2020, p. 10) explain that when some women are being strangled, they may find themselves in "flight mode", fearing it will be "survival of the fittest". When victim/survivors act in self-defence and attempt to strike their perpetrator, bend his hand, pull his hair, scratch his face, or attack him with a knife they are at risk of having a cross-order filed against them (Douglas & Fitzgerald, 2020; Gwinn et al., 2014). Perpetrators of strangulation can also try to avoid accountability by minimising their actions, gaslighting their victims, or pressuring them to not report the event to police (Brady et al., 2021; Thomas et al., 2014). Hence, NFS cases have been difficult to prosecute and have been dismissed due to the lack of evidence – particularly when victim/survivors have no visible injuries or they are suffering

memory loss due to the emotional and physical trauma of being strangled (Strack & Gwinn, 2011).

Bitzer (2020, p. 52) acknowledges the importance of women's strangulation reports being examined thoroughly from both "a medical and legal perspective [as they] could have implications [on] how a prosecutor may charge an abuser". Although strangulation can be as fatal as other violent incidents, assaults with weapons are often considered more credible, with reports of strangulation sometimes considered 'alleged' due to the lack of evidence (Anderson, 2016). However, women who have survived strangulation are now considered to have experienced 'non-fatal strangulation' - terminology that acknowledges the life-threatening nature of the event as compared to earlier terminology - "attempted strangulation" - that minimised the assault (Gwinn et al., 2014, p. 82).

Since 2014, five out of the eight Australian states and territories have introduced legislation addressing strangulation (Douglas, 2019). The Australian Capital Territory (in 2015) and Western Australia (in 2020) are the only Australian jurisdictions that include a definition of strangulation in their legislation (Douglas & Fitzgerald, 2020). For example, the definition in the Australian Capital Territory legislation is as follows:

strangle, a person, includes apply pressure, to any extent, to the person's neck.
suffocate, a person, includes the following:
(a) obstruct, to any extent, any part of the person's
i.respiratory system; or
ii.accessory systems of respiration;
(b) interfere, to any extent, with the operation of the person's
i.respiratory system; or
ii.accessory systems of respiration;
(c)impede, to any extent, the person's respiration (Crimes Act 1900 (ACT) s.27).

In contrast, the legislation in New South Wales requires proof of both the accused's intent to strangle and the victim/survivor's lack of consent to being strangled (Douglas & Fitzgerald, 2020). While in Queensland (in 2016) and South Australia (in 2019) strangulation legislation is "explicitly applicable, and limited, to the domestic relationship context" (Douglas & Fitzgerald, 2020, p. 5) - it states that a criminal offence occurs when a person "chokes, suffocates or strangles" another person "without the person's consent", in the context of a domestic relationship (Criminal Code Act 1899 (Qld), s. 315A; Criminal Law Consolidation Act 1935 (SA), s20A). Hence, as in New South Wales, the prosecuting authorities in Queensland and South Australia must prove that the victim/survivor did not consent to being choked, suffocated, or strangled (Douglas & Fitzgerald, 2020, p. 5).

Douglas and Fitzgerald (2020) stress the need for legislation to contain a definition of strangulation that accurately represents victim/survivors' experiences. Any definition should capture "the broad range of actions that underpin it and its central danger - that it impedes breathing or restricts blood flow" (Douglas & Fitzgerald, 2020, p. 13). It is noted that "in a recent Queensland decision, the Court of Appeal determined that 'in order to amount to choking, there must be some pressure that results at least in the restriction of the victim's breathing" (R v HBZ [2020] QCA 73, cited in Douglas & Fitzgerald, 2020, p. 5).

The legal requirement that a victim/survivor's lack of consent to strangulation be proved is also concerning, particularly since research shows that strangulation usually occurs within the context of a coercive and controlling relationship - a context where victim/survivors experience fear and have constrained agency (Douglas & Fitzgerald, 2020). Criminal law does not recognise consent to serious levels of violence (Tolmie, 2018, p. 56). Therefore, the necessity to prove lack of consent to strangulation erodes the seriousness of the act and its consequences on victim/survivors (Strack & Gwinn, 2011).

Further concerns are raised about a victim/survivor being cross-examined regarding her willingness to be strangled, particularly when there is an assumption of consent because the woman has remained in the relationship even though there has been a history of NFS (Tolmie, 2018, p. 58). Strangulation needs to be acknowledged as a form of "coercive control across all official policy documentation"; and "in sentencing guidelines" strangulation needs to be recognised "as an aggravating factor across all offences, rather than leaving the matter to judicial discretion" (Edwards & Douglas, 2021, p. 119). Douglas and Fitzgerald's (2014, p. 249) review of court documents exposed a "lack of particular attention paid to strangulation by police and magistrates", indicating the need for strangulation prevention and intervention training for "police and magistrates in relation to recognition of strangulation injuries and their seriousness".

Strangulation prevention and intervention education/training

Haag and colleagues (2019, p. 993) recommend certain cohorts be targeted for strangulation prevention and intervention training:
frontline workers and other staff, decision makers, and workers across legal and health care systems, including first responders, funding organisations, journalists, police and correctional services, and violence against women and brain injury advocacy groups.

Increased understandings about the dangers associated with NFS, can result in episodes being more comprehensively documented, and any health consequences more thoroughly investigated (Glass et al., 2008). Research confirms the importance of educating first responders about the connections between DFV and strangulation, and strangulation and brain injury (Edwards & Douglas, 2021; Glass et al., 2008; Haag et al., 2019; Kwako et al., 2011). To complement this training for first responders, it is recommended that "mandatory training in postsecondary professional programs, education in secondary schools, public awareness campaigns, and public service announcements" be provided (Haag et al., 2019, p. 993).

General practitioners have been identified for strangulation prevention and intervention training, particularly regarding the screening of victim/survivors of DFV for NFS and their referral onto appropriate services; this would lower the risk of these women experiencing a stroke or brain injury (Edwards & Douglas, 2021; Glass et al., 2008; Haag et al., 2019; Kwako et al., 2011). One aim of this training is to simplify and de-medicalise language around strangulation and its consequences, such as brain injury, "allowing [or enabling] survivors to make connections to their own experiences" (Haag et al., 2019, p. 993).

Strangulation prevention and intervention training for first responders can increase the likelihood of critical evidence being collected for criminal justice purposes (Pritchard et al., 2017). This training can build awareness of how fear and terror are "part of the perpetrator's intention" to exercise "power and control" over the victim/survivor, and how fear and terror have the "capacity to cause psychological and mental damage" (Edwards & Douglas, 2021, p. 119). Hence, police can develop greater understandings about strangulation, leading to them interviewing victim/survivors more "appropriately about strangulation" - "this should result in clearer recording of [the] incident and injury" (Douglas & Fitzgerald, 2014, p. 250). As well, with training, police are more likely to follow up with victim/survivors to ensure they are safe and to verify that "accurate information is recorded, and the most appropriate charge is laid" (Douglas & Fitzgerald, 2014, p. 250). Strangulation prevention and intervention training enhances the likelihood of victim/survivors being assisted to "successfully navigate" the criminal justice and legal systems (Haag et al., 2019, p. 994).

Long term support following the initial crisis response

Haag et al. (2019, pp. 993-994) suggest victim/survivors of strangulation would benefit from "community-based peer support, a unified service hub, and use of a feminist trauma-informed model of care". Victim/survivors' long-term wellbeing is reliant on the accessibility of "informing, empowering, and supportive" assistance from health and DFV responders (Domestic Violence Service Management, 2018). Support services for women who have experienced NFS need to be underpinned by the principle that victim/survivors are the "experts of their experiences" and they "are best placed to lead the development of plans aimed at securing their long-term safety and wellbeing" (Toivonen & Backhouse, 2018, p. 10).

Victim/survivors of strangulation can face many barriers to receiving appropriate support, and support services can face barriers to providing the long-term specialised support required by this cohort of women (Haag et al., 2019). Victim/survivors can feel shame or stigma from their experiences of violence and can be concerned that seeking support could influence legal decisions about their capacity and suitability to parent (Haag et al., 2019). Such concerns can influence women to remain silent about abuse, compounding their risk of experiencing continuing violence (Haag et al., 2019). Domestic and family violence services can face significant barriers to securing adequate funding to provide the specialist support required by victim/survivors of strangulation, and funders appear unaware of the connection between experiencing DFV and the possibility of acquiring a brain injury due to a strangulation episode (Haag et al., 2019).

There is a need for building “practice-based knowledge on how to best support victim/survivors through the potentially lethal and long-term health consequences” of NFS, particularly since “acquired brain injuries are often invisible … and are commonly misunderstood” (Farrugia et al., 2020, pp. 4-5). Not all victim/survivors will experience a brain injury, but the impact of such an injury on a woman’s “quality of life, wellbeing, and capacity to live independently” can place her at “further risk of violence and controlling behaviour from a perpetrator” (Farrugia et al., 2020, p. 5). High-risk DFV victim/survivors, such as those who have experienced NFS, require support that extends beyond the crisis intervention in order to meet their complex long-term needs (Tomkins, 2020).

References

Adolfsson, A. (2011). Meta-analysis to obtain a scale of psychological reaction after perinatal loss: Focus on miscarriage. Psychology Research and Behavior Management, 4, 29–39. https://doi.org/10.2147/PRBM.S17330

Anderson, D.R. (2016). Understanding the physical and psychological experiences of intimate partner strangulation survivors. Masters Dissertation. California School of Forensic Studies, Alliant International University, Sacramento.

Australian Institute of Health and Welfare. (2018). Family, domestic, and sexual violence in Australia. AIHW.

Birchard, H., Byrne, C., Saville, C.W.N. & Coetzer, R. (2021). The neuropsychological outcomes of non-fatal strangulation in domestic and sexual violence: A systematic review. Neuropsychological Rehabilitation. https://doi.org/10.1080/09602011.2020.1868537

Bitzer, H.B. (2020). An examination of providers' awareness, knowledge of screening and treatment, and perceived barriers associated with intimate partner violence-related traumatic brain injury. Dissertation. Graduate School of Public Health, University of Pittsburgh.

Braamcamp de Mancellos, J. (2021). Pathology of non-fatal asphyxia and the risk of fatal outcome in the context of intimate partner violence. Journal of Forensic Science and Criminology, 9(2), 1-12. https://doi.org/10.1177/10778012211022772

Brady, P.Q., Fansher, A.K., & Zedaker, S.B. (2021). How victims of strangulation survived: Enhancing the admissibility of victim statements to the police when survivors are reluctant to cooperate. Violence Against Women, 1-26.

Brain Injury Australia. (2018). The prevalence of acquired brain injury among victims and perpetrators of family violence. Brain Injury Australia.

Campbell, A.M., Hicks, R.A., Thompson, S.L., & Wiehe, S.E. (2017). Environments in which they occur: Victim reports to responding law enforcement officers. Journal of Interpersonal Violence,1-24.

Carlson, S. (2014). Strangulation – Asphyxia and terror. Canadian Journal of Emergency Nursing, 37(2), 20-23.

Cimino, A.N., Patch, M., Alter, Y., Campbell, J.C., Gundersen, K.K., Tang, J.T., Tsuyuki, K., & Stockman, J.K. (2019). The effect of intimate partner violence and probable traumatic brain injury on mental health outcomes for black women. Journal of Aggression, Maltreatment & Trauma, 28(6), 714-731. https://doi.org/10.1080/10926771.2019.1587657

Crimes Act 1900 (ACT) s.27

Criminal Code Act 1899 (Qld).

Criminal Law Consolidation Act 1935 (SA).

De Boos, J. (2019). Review article: Non-fatal strangulation: Hidden injuries, hidden risks. Emergency Medicine Australasia, 31, 302-308.

Dobash, R.E., Dobash, R.P., Cavanagh, K., & Medina-Ariza, J. (2007). Lethal and nonlethal violence against an intimate female partner: Comparing male murderers to nonlethal abusers. Violence Against Women, 13(4), 329-353. https://doi.org/10.1177/1077801207299204.

Domestic Violence Service Management (DVSM). (2018). Whole of Person, Person-Centred responses to the intersection of Domestic and Family Violence and Acquired Brain Injury. Domestic Violence NSW Service Management. Retrieved from https://dvnswsm.org.au/wp-content/uploads/2019/06/Map-01-DFVABI-Intersection-%E2%80%93-Responses-and-Service-Pathways-Western-Sydney.pdf

Dotson, K. (2011). Tracking epistemic violence, tracking practices of silencing. Hypatia, 26(2), 236-257.

Douglas, H. (2019). Victoria's commitment to a non-fatal strangulation offence will make a difference to vulnerable women. The Conversation, 3 July. Retrieved from http://theconversation.com/victorias-commitment-to-a-non-fatal-strangulation-offence-will-make-a-difference-tovulnerable-women-119743

Douglas, H., & Fitzgerald, R. (2014). Strangulation, domestic violence, and the legal response. Sydney Law Review, 36, 231-254.

Douglas, H., & Fitzgerald, R. (2020). Women's stories of non-fatal strangulation: Informing the criminal justice response. Criminology & Criminal Justice, 1–17. https://doi.org/10.1177/1748895820949607

Edwards, S.S.M., & Douglas H. (2021). The criminalisation of a dangerous form of coercive control: Non-fatal strangulation in England and Wales and Australia. Journal of International and Comparative Law, 8(1), 87-120.

Farrugia, C., Funston, L., Verco, J., Campbell, J., Rabuka, M., Castro, R., & Andrews, L. (2020). Time is of the essence: Domestic and family violence and the potential for acquired brain injuries in victim/survivors. NSW Health Education Centre Against Violence.

Funk, M., & Schuppel, J. (2003). Strangulation injuries. WMJ-MADISON, 102(3), 41–45.
Glass, N., Laughon, K., Campbell, J., Block, C.R., Hanson, G., Sharps, P.W., & Taliaferro, T. (2008). Non-fatal strangulation is an important risk factor for homicide of women. The Journal of Emergency Medicine, 35(3), 329–335. https://doi.org/10.1016/j.jemermed.2007.02.065

Green, S. (2017). Strangulation is a powerful tool of violence that often leaves no physical mark. Training Institute on Strangulation Prevention. Retrieved from https://www.strangulationtraininginstitute.com/strangulation-is-a-powerful-tool-of-violence-that-often-leaves-no-physical-markofficials-in-king-county-want-it-noticed-prosecuted/

Gwinn, C., Strack, G., & Mack, M. (2014). Law reform targets the crime of strangulation. Domestic Violence Report, 19(6), 81-100.

Haag, H., Sokoloff, S., MacGregor, N., Broekstra, S., Cullen, N., & Colantonio, A. (2019). Battered and brain injured: Assessing knowledge of traumatic brain injury among intimate partner violence service providers. Journal of Women's Health, 28(7), 990-997.

Hawley, D.A., McClane, G.E., & Strack, G.B. (2001). A review of 300 attempted strangulation cases part III: Injuries in fatal cases. The Journal of Emergency Medicine, 21(3), 317–322. https://doi.org/10.1016/S0736-4679(01)00401-2

Jordan, K.S., Murphy, J.A., Romine, A.J., & Varela-Gonzalez, L. (2020). A case of nonfatal strangulation associated with intimate partner violence. Advanced Emergency Nursing Journal, 42(3), 186–195. https://doi.org/10.1097/TME.0000000000000305

Joshi, M., Thomas, K.A., & Sorenson, S.B. (2012). "I didn't know I could turn colors": Health problems and health care experiences of women strangled by an intimate partner. Social Work in Health Care, 51(9), 798–814. https://doi.org/10.1080/00981389.2012.692352

Kabat, H., & Anderson, J.P. (1943). Acute arrest of cerebral circulation in man: Lieutenant Ralph Rossen. Archives of Neurology & Psychiatry, 50(5), 510–528. https://doi.org/10.1001/archneurpsyc.1943.02290230022002

Kwako, L.E., Glass, N., Campbell, J., Melvin, K.C., Barr, T., & Gill, J.M. (2011). Traumatic brain injury in intimate partner violence: A critical review of outcomes and mechanisms. Trauma, Violence, & Abuse, 12(3), 115–126. https://doi.org/10.1177/1524838011404251

Levack, M.M., Pettitt, B.J., & Winston, A.D. (2009). Carotid artery thrombosis and delayed stroke associated with the use of a shoulder belt in a teenager. Journal of Pediatric Surgery, 44(8), e29–e33. https://doi.org/10.1016/j.jpedsurg.2009.05.026

Malec, J.F., Brown, A.W., Leibson, C.L., Flaada, J.T., Mandrekar, J.N., Diehl, N.N., & Perkins, P.K. (2007). The Mayo classification system for traumatic brain injury severity. Journal of Neurotrauma, 24(9), 1417–1424. https://doi.org/10.1089/neu.2006.0245

Manne, K. (2017). Down Girl: The Logic of Misogyny. Oxford University Press.

McClane, G.E., Strack, G.B., & Hawley, D. (2001). A review of 300 attempted strangulation cases Part II: Clinical evaluation of the surviving victim. The Journal of Emergency Medicine, 21(3), 311–315. https://doi.org/10.1016/S0736-4679(01)00400-0

McLean, M. (2012). The identification, care, and advocacy of strangulation victims: Information for front line workers and crisis advocates (Victorian Order of Nurses for Canada, 2009, rev 2012). Retrieved from www.von.ca/pdf/special_projects/STRANGULATION_PROTOCOL_Final_May_2012.pdf

Mcquown, C., Frey, J., Steer, S., Fletcher, G.E., Kinkopf, B., Fakler, M., & Prulhiere, V. (2016). Prevalence of strangulation in survivors of sexual assault and domestic violence. The American Journal of Emergency Medicine, 34(7), 1281–1285. https://doi.org/10.1016/j.ajem.2016.04.029

Messing, J.T., Patch, M., Sullivan Wilson, J., Kelen, G.D., & Campbell, J. (2018). Differentiating among attempted, completed, and multiple nonfatal strangulation in men experiencing intimate partner violence. Women's Health Issues, 28(1), 104–111.

Monahan, K., Purushotham, A., & Biegon, A. (2019). Neurological implications of nonfatal strangulation and intimate partner violence. Future Neurol, 14(3), 1-5.

Pritchard, A.J., Reckdenwald, A., Nordham, C., & Holton, J. (2018). Improving identification of strangulation injuries in domestic violence: Pilot data from a researcher–practitioner collaboration. Feminist Criminology, 13(2), 160–181.

Rajaram, S.S., Reisher, P., Garlinghouse, M., Chiou, K.S., Higgins, K.D., New-Aaron, M., Ojha, T., & Smith, L.M. (2020). Intimate partner violence and brain injury screening. Violence Against Women, 27(10), 1548-1565. https://doi.org/10.1177/1077801220947164

Ralston, B., Rable, J., Larson, T., Handmaker, H., & Lifshitz, J. (2019). Forensic nursing examination to screen for traumatic brain injury following intimate partner violence. Journal of Aggression, Maltreatment & Trauma, 28(6), 732–743. https://doi.org/10.1080/10926771.2019.1637988

Reckdenwald, A., Fernandez, K., & Mandes, C.L. (2019). Improving law enforcement's response to non-fatal strangulation. Policing: An International Journal, 42, 1007–1021. https://doi.org/10.1108/PIJPSM-12-2018-0186

Sauvageau, A., Ambrosi, C., & Kelly, S. (2012). Three nonlethal ligature strangulations filmed by an autoerotic practitioner. American Journal of Forensic Pathology, 33(4), 339–340.

Shields, L.B., Corey, T.S., Weakley-Jones, B., & Stewart, D. (2010). Living victims of strangulation: A 10-year review of cases in a metropolitan community. The American Journal of Forensic Medicine and Pathology, 31(4), 320–325. https://doi.org/10.1097/PAF.0b013e3181d3dc02

Smith Jr, D.J., Mills, T., & Taliaferro, E.H. (2001). Frequency and relationship of reported symptomology in victims of intimate partner violence: The effect of multiple strangulation attacks. The Journal of Emergency Medicine, 21(3), 323–329. https://doi.org/10.1016/S0736-4679(01)00402-4

Smock, W. (2014.) Clinical Forensic Nursing Evaluation in the Strangulation Patient. Presentation at the International Conference on Forensic Nursing Science and Practice hosted by the International Association of Forensic Nurses. Phoenix, AZ, October 24, 2014.

Sorenson, S.B., Joshi, M., & Sivitz, E. (2014). A systematic review of the epidemiology of nonfatal strangulation, a human rights and health concern. American Journal of Public Health, 104(11), e54-e61.

Spencer, C.M., & Stith, S.M. (2020). Risk factors for male perpetration and female victimization of intimate partner homicide: A meta-analysis. Trauma, Violence, & Abuse, 21(3) 527-540.

Strack, G., & McClane, G. (2001). How to improve your investigation and prosecution of strangulation cases. Retrieved from: http://www.ncdsv.org/images/Strack-McClane_HowToImproveYourInvestigationProsecutionStrangulation_updated_9-2001.pdf

Strack, G.B., McClane, G.E., & Hawley, D. (2001). A review of 300 attempted strangulation cases Part I: Criminal legal issues. The Journal of Emergency Medicine, 21(3), 303–309. https://doi.org/10.1016/s0736-4679(01)00399-7

Strack, G.B., & Gwinn, C. (2011). On the edge of homicide: Strangulation as a prelude. Criminal Justice, 26(3), 32.

Thomas, K.A., Joshi, M., & Sorenson, S.B. (2014). Do you know what it feels like to drown? Strangulation as coercive control in intimate relationships. Psychology of Women Quarterly, 38(1), 124–137. https://doi.org/10.1177/0361684313488354

Toivonen, C., & Backhouse, C. (2018). National Risk Assessment Principles for domestic and family violence: Companion resource. A summary of the evidence-base supporting the development and implementation of the National Risk Assessment Principles for domestic and family violence. ANROWS Insights 09/2018: ANROWS.

Tolmie, J. (2018). Coercive control: To criminalize or not to criminalize? Criminology & Criminal Justice, 18(1), 50–66.

Tomkins, J. (2020). High-risk victims of intimate partner violence within the Integrated Safety Response pilot: An examination of psychosocial stressors and repeat victimisation. Thesis. The University of Waikato.

Turkel, A. (2007). “And then he choked me”: Understanding, investigating, and prosecuting strangulation cases. The Voice (National Center for the Prosecution of Violence Against Women). Retrieved from http://www.ncdsv.org/images/NCPCA_AndThenHeChokedMe_vol_20_no_8_2007.pdf Valera, E.M., & Berenbaum, H. (2003). Brain injury in battered women. Journal of Consulting Clinical Psychology, 71, 797-804.

Vella, S.A., Miller, M.M., Lambert, J.E., & Morgan, M.L. (2017). “I felt close to death”: A phenomenological study of female strangulation survivors of intimate terrorism. Journal of Feminist Family Therapy, 29(4), 171–188.

White, C., & Majeed-Ariss, R. (2018). Non-fatal strangulation amongst clients attending Saint Mary’s SARC. Manchester University NHS Foundation Trust. https://www.stmaryscentre.org/application/files/5815/6439/0323/White2018.pdf

Wilbur, L., Higley, M., Hatfield, J., Surprenant, Z., Taliaferro, E., Smith Jr, D.J., & Paolo, A. (2001). Survey results of women who have been strangled while in an abusive relationship. The Journal of Emergency Medicine, 21(3), 297–302. https://doi.org/10.1016/S0736-4679(01)00398-5

World Health Organisation. (2013). Global and regional estimates of violence against women: prevalence and health effects of intimate partner violence and non-partner sexual violence. WHO.

Zieman, G., Bridwell, A., & Cardenas, J.F. (2017). Traumatic brain injury in domestic violence victims: A retrospective study at the Barrow Neurological Institute. Journal of Neurotrauma, 34, 876-880. https://doi.org/10.1089/neu.2016.4579

Zilkens, R.R., Phillips, M.A., Kelly, M.C., Mukhtar, S.A., Semmens, J.B., & Smith, D.A. (2016). Non-fatal strangulation in sexual assault: A study of clinical and assault characteristics highlighting the role of intimate partner violence. Journal of Forensic and Legal Medicine, 43, 1–7. https://doi.org/10.1016/j.jflm.2016.06.005

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