Journal of the Academy of Forensic Nursing

Research Reviews

AFN Journal Club Winter-Spring Reviews

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AFN Journal Club Winter-Spring Reviews

The AFN Journal Club meets regularly to review the quality of the evidence available to support our clinical practice. This is a core requirement of professional practice.

AFN Journal Review Criteria

- Evidence tables are for the review of studies that may have implications for clinical practice.
- All articles on this table have been reviewed by the AFN Journal Club.
- Abbreviations are listed in the legend following the reviews.

Melnyk Levels of Evidence (Melnyk & Fineout-Overholt, 2015)

- **Level 1 -** Systematic review & meta-analysis of randomized controlled trials; clinical guidelines based on systematic reviews or meta-analyses
- **Level 2 -** One or more randomized controlled trials
- **Level 3 -** Controlled trial (no randomization)
- **Level 4 -** Case-control or cohort study; correlation design; examines relationships
- **Level 5 -** Systematic review of descriptive & qualitative studies
- **Level 6 -** Single descriptive or qualitative study; does not examine relationships
- **Level 7 -** Expert opinion

Legend

NFS= *Nonfatal Strangulation*; IPV= *Intimate Partner Violence*; DA= *Danger Assessment*; EHR= *Electronic Health Record*; PVS= *Partner Violence Screening*; SA=*Sexual Assault*; LE=*Law Enforcement*; RR= *Risk Ratio*; CI= *Confidence Interval*; TBD= *Toluidine Blue Dye*; FN=*Forensic Nurse*

Completed Reviews

Marr, R., Bugeja, L. Hyoid fracture: consensual sex-play or non-consensual nonfatal strangulation: a case report. Int J Legal Med (2024). https://doi.org/10.1007/s00414-024-03353-6

Study Description/Background The issue of strangulation, consensual and non-consensual, as part of sex acts is important as the "rough sex gone wrong" defense has been used in cases of women being killed by strangulation by intimate partners in multiple cases. There is a paucity of literature examining the incidence of diverse and "rough" sex behaviors including sex-related strangulation and bondage & discipline, domination & submission, and sadism & masochism. The true incidence of hyoid fracture in the context of NFS is not known, though there is a wide range reported in studies on fatal strangulation. This article is a case review where consensual and non-consensual NFS has occurred in a woman who presents with a hyoid fracture.

Literature Review 44 references; 16 were within 5 years; all pertained to subject matter. Many references outdated but likely due to gaps in literature.

Design/Methods N/A – Case review

Sample One case study: 30s female involving manual NFS that was thought to be a more likely mechanism than consensual wearing of a sex-collar; ultimately the similar timeframes of the collar-wearing and the non-consensual manual NFS resulted in the accused not being convicted of strangulation.

Analysis No formal analysis for data collection, but the authors did a thorough job of summarizing available literature on the topic, to include findings of hyoid bone fractures in nonconsensual strangulations (both ligature and manual), as well as discussion of articles highlighting sex play and strangulation. Authors acknowledged that there are no specific cases reported of consensual strangulation causing a hyoid fracture.

Results/Limitations In this case study, accused was not convicted due to confusion among timeline of consensual and nonconsensual acts, that both took place over timeframe. In addition, patient was seen by primary care provider during the timeline spanning multiple strangulation events, but no imaging was done, so unclear if patient already had hyoid bone fracture at that time. Further studies regarding injuries that result from consensual sex play, particularly strangulation, are required to assist clinical forensic

practitioners when giving evidence about cases of strangulation; however, most patients involved in consensual sex play do not seek help, so numbers of patients who sustain hyoid fracture from nonconsensual strangulation dominate the literature. One single case study is not generalizable; case study was from Australia, so demographics and location not generalizable. The legal outcome of this case may also not be generalizable to potential legal outcomes in other areas of the world.

Clinical Significance It is important that healthcare professionals are well educated as to the assessment, investigation, and management of NFS so that injuries can be diagnosed, documented, and managed in a timely manner. The absence of robust documentation of injuries, as seen in this case review, makes it difficult to provide an opinion about injuries potentially caused by other relevant physical assaults. These factors are also important given timing of injuries can be highly relevant from a legal perspective. Other forms of blunt trauma besides strangulation, such as blows, kicks, being thrown or jumped on, and bites should be well documented. Where blunt trauma to other parts of the body occurs, significant visible injuries may suggest that a co-existing hyoid fracture was inflicted rather than accidental. For example, the presence of blunt or sharp force related injuries localized to the forearms and hands may be suggestive that a person has attempted to defend themselves from an assault. Drilling down timelines of onset of symptomatology and injury findings are particularly helpful when patient endorses multiple assaults/strangulation or even sexual play acts over the course of the acute window when the clinician is attributing certain findings/symptoms to specific events.

Level of Evidence 4

Lenert, L., Rheingold, A. A., Simpson, K. N., Dmitry Scherbakov, Aiken, M., Hahn, C., McCauley, J. L., Ennis, N., & Diaz, V. A. (2024). Electronic Health Record–Based Screening for Intimate Partner Violence. JAMA Network Open, 7(8), e2425070–e2425070. https://doi.org/10.1001/jamanetworkopen.2024.25070

Study Description/Background IPV is a significant public health problem, with a 5.9% annual rate of IPV reported among women in the U.S. and a lifetime prevalence reported to be 25% of all women. Screening in primary care is recommended by the U.S. Preventive Service Task Force but is conducted less frequently than screening for other health conditions such as depression. A lack of expertise by primary care professionals in assessing risk, time constraints, and difficulty linking patients with needed resources may also pose significant barriers for clinicians in the screening processes. The aim of this study was to assess the effect of an EHR-based multifactorial intervention screening on the detection of IPV risk in primary care practice. The present study includes implementation of an IPV screening workflow consisting of four major components: (1) a non-interruptive alert for annual IPV screening; (2) PVS confidential self-report; (3) patient risk screening with the DA; and (4) clinician confidential documentation of screening results, brief intervention, and patient referral.

Literature Review 22 references; 8 within 5 years; would have preferred more contemporary articles from forensic nursing specific journals

Design/Methods Randomized stepped-wedge clinical trial conducted from October 6, 2020, to March 31, 2023. MA/RN performed initial screening; if positive, would trigger a kiosk-like mode on exam room computer for patients to self-administer PVS questionnaire; if positive, would trigger RN to complete DA, which is an additional questionnaire administered to assess risk levels of future harm; IRB waived.

Sample Female patients aged 18–49 (focus on child-bearing age) in South Carolina presenting to 15 primary medicine clinics, resulting in a total of 34,157 visits. During the study period, 17,433 patients triggered a nurse-led screening and of those, 8,895 were also assigned the patient-administered PVS. Majority of females were white (65.3%) with mean age of 34.1 years.

Analysis Descriptive demographic characteristics included in tables; statistical analysis for all outcomes was performed using R, version 4.3.1 (R Project for Statistical Computing) and the MASS package for mixed effects models. All P values were from two-sided tests. Separate regression analysis to estimate how demographic variables and visit type affected the probability of a positive screening result.

Results/Limitations The triggering of a non-interruptive screening alert had important effects on the overall rate of screening for IPV, increasing the rate of screening using either method from 45.2% to 65.3%. Only 9 of 17,433 patients were identified as being at risk for IPV using the baseline nurse-led screener, while 130 of 8,895 patients reported past-year IPV with the PVS questionnaire. Patients who were older, single, from racial and ethnic minority groups, or had public U.S. insurance (Medicare/Medicaid) were screened less frequently. Limitations include bias from clinic staff with voluntary approach to initial/baseline screen (unclear how the staff were trained to suspect abuse); interruptions from COVID-19 pandemic; nongeneralizable population (mostly white females in one area of the country); no nurse authors or forensic nurse authors with expertise in the arena of IPV; missed opportunity for underserved patients at risk of IPV who don't have insurance and/or would not present to a family medicine clinic, such as patients presenting to an emergency-department setting.

Clinical Significance Combination of privacy-preserving procedures and non-interruptive alerting may allow for increased screening rates and sensitivity when screening for IPV.

Level of Evidence Level 6

Crawford LS, Downing NR, Famurewa AD, Markowitz JR, Han G. Genital lacerations following sexual assault and consensual sexual intercourse: A systematic review and meta-analysis. *J Forensic Sci.* 2024 Nov 20. doi: 10.1111/1556-4029.15666.

Study Description/Background SA involving penetration of the vagina can cause genital injury. In addition to health risks, documentation of the presence of these injuries may impact the willingness of victims to report sexual assault, the likelihood LE will investigate and may have evidentiary value in the prosecution of these crimes. The purpose of this meta-analysis was to compare the presence of external genital lacerations in persons with vulvas reporting consensual versus non-consensual vaginal penetration.

Literature Review 35 references, all pertain to subject matter or to provide context to background; only 12 references within 5-year mark but there is a gap in the literature with significant heterogeneity among the research.

Design/Methods A systematic search was conducted with the assistance of a medical sciences librarian. The databases searched included Web of Science, PubMed, and CINAHL. The search did not include date restrictions due to the anticipated low number of studies with usable data. The final search was performed on October 12, 2023.

Sample Six studies/articles. All studies focusing on anogenital examination of participants following consensual and non-consensual intercourse were included. Heterogeneity among studies was heavily considered; only studies that compared findings between female participants reporting consensual versus non-consensual vaginal penetration were included**.** Extracted data regarding the methodology for each study included provider type, provider experience and training, average participant age, average time elapsed between penetration and examination (measured in hours), visualization methods employed, genital sites examined/documented, and documentation terms utilized

Analysis Mantel–Haenszel random-effects model was used to examine the measure of effect size across the six studies. Pooled RR and their respective 95% CIs were calculated, examining the prevalence of genital lacerations/tears in individuals who reported consensual versus non-consensual vaginal penetration. The heterogeneity among the studies was examined using Cochran's Q statistic, the I^2 index, and τ^2. The meta-analytical method employed the inverse variance method with a restricted maximum-likelihood estimator for τ^2, and the Q-Profile method was utilized for confidence intervals of τ^2 and τ. The analysis was executed using R, version 4.3.2.

Results/Limitations 26% increased risk of laceration occurring in the non-consensual group compared to the consensual group across all studies. In all studies, lacerations were more prevalent on external genitalia. One study found the frequency of genital injury, as determined by macroscopic (naked eye) examination, ranged from 5% to 87%; on average, the prevalence of injuries detected solely through macroscopic examination was 31.8%. However, the prevalence increased when more advanced visualization methods were employed, such as colposcopy with TBD staining, which revealed a 63.3% injury rate. Studies in this meta-analysis did not use standardized visualization and documentation procedures (i.e. some used magnification/microscopy, some macroscopy, some TBD) so standard practices for injury visualization and documentation differed. Only two studies in the meta-analysis included power analyses to determine adequate sample sizes. Limitations: Large heterogeneity among studies including who identified the injuries, how they were trained, visualization methods and specialized equipment that was used, sample size, subject ages, and injury terms used; small sample size of six articles so the impact of any single study's methodological flaws or biases becomes more pronounced; the studies utilized in this analysis did not account for race and how skin color might impact the ability to detect lacerations in individuals with darker skin colors, especially when using only the naked eye; confirmation bias of examiners identifying

injury that are aware if patient is reporting consensual or nonconsensual sexual activity.

Clinical Significance It is not possible to accurately determine whether vaginal penetration that resulted in genital lacerations was consensual or not. The TEARS classification uses the term "ecchymosis," which is often used synonymously with bruise or contusion; however, ecchymosis can occur from non-traumatic causes, whereas bruises (contusions) are caused by blunt force trauma. FN examiners need to address linguistic inconsistencies among injury terms. TBD and colposcopy require ongoing training and documentation of proficiency. Further research is needed using standardized assessment and documentation methods and larger sample sizes to provide additional data on genital laceration injury patterns in consensual versus non-consensual vaginal penetration.

Level of Evidence 5

Reference

Melnyk, B.M. & Fineout-Overholt, E. (2015). "Box 1.3: Rating system for the hierarchy of evidence for intervention/treatment questions" in *Evidence-based practice in nursing & healthcare: A guide to best practice (3rd ed.)* (pp. 11). Philadelphia, PA: Wolters Kluwer Health. ISBN 9781451190946