

AFN Journal Club Research Reviews: Summer-Fall

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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 NAAT= *Nucleic Acid Amplification Test*; NG= *Neisseria Gonorrhoea*; CT= *Chlamydia Trachomatis*; SA= *Sexual Assault*; TMA= *transcription-mediated amplification*; ED= *Emergency Department*; IPV= *Intimate Partner Violence*



Completed Reviews

Jansson L, Swensson M, Gifvars E, Hedell R, Forsberg C, Ansell R, & Hedman J. (2022, Jan). Individual shedder status and the origin of touch DNA. *Forensic Sci Int Genet.* 56:102626. doi: 10.1016/j.fsigen.2021.102626. PMID: 34781198.

Study Description/Background. Examine if the shedder status of an individual at a given occasion can be coupled to the DNA levels on the facial skin, and also examine the relation between deposited DNA levels and individual facial sebum secretion levels.

Literature Review. 44 references; 22 within 5 years. All references relevant to subject matter.

Design/Methods. Experimental design; participants (n=9) were assigned to attend a weekly, one-hour seminar three weeks in a row and were instructed to keep one of their hands “inactive”, meaning that this hand could not touch anything, while the other “active” hand was allowed to operate “as usual”, i.e. to touch objects, handle phones, scratch the nose, etc. Additionally, to clarify whether the levels of deposited DNA from the hands of an individual is dependent on the DNA levels from sebum-rich areas in the face of the same person, participants (n=15) were asked to deposit DNA from both hands by holding plastic tubes, and at the same occasion also provide two DNA samples from their forehead. Facial sebum levels of the participants were also measured to determine if sebum level is an underlying factor of shedder status. Approval received by Swedish Ethical Review Authority.

Sample. Participants at a seminar; did not specify demographic information of subjects, so unclear on gender, age, and ethnicity.

Analysis. DNA yields from hands and face were presented in scatter plots and bar chart with mean total DNA yields \pm standard deviations. One-way ANOVA followed by Tukey’s post-hoc test was applied with R software to examine statistical differences between the participants regarding deposition of foreign alleles from hands and sebum secretion levels. Pearson’s correlation coefficient (r) was determined to examine the strength of the linear relationship between (1) DNA yields on inactive versus active hands, (2) DNA yields from hands and face for each participant at a given occasion, (3) DNA yields from hands or face and time since last hand or face wash, and (4) sebum levels and DNA yields from hands or face for each participant.

Results/Limitations. No correlation between DNA levels on active and inactive

hands was found, implying that individuals with higher levels of DNA on their inactive hands were not consistently the same as those with higher DNA levels on their active hands. No significant differences in DNA deposition between dominant and non-dominant active hands were seen. Strong correlation between DNA amounts deposited from hands and DNA concomitantly collected from the face; no correlation between individual facial sebum secretion and the amount of shed DNA from hands. Majority of touch DNA was not derived endogenously from the hands but seemed to be transferred to the hands from elsewhere.

Clinical Significance. Forensic clinicians should consider behaviors of suspect/offender (sweating, touching inanimate objects, touching own face, etc.) and variables of suspect/offender (gender, age, etc.). Individual levels of deposited DNA are highly associated with the level of DNA accumulation on the skin of the face, but there does not appear to be a correlation between amounts of deposited DNA and facial sebum secretion. Strong association to facial DNA accumulation suggests that physiological mechanisms rather than differences in personal habits dictate the individual shedder status.

Level of Evidence. Level 3

Kellogg ND, Melville JD, Lukefahr JL, Nienow SM, & Russell EL. (2018, Nov). Genital and Extragenital Gonorrhea and Chlamydia in Children and Adolescents Evaluated for Sexual Abuse. *Pediatr Emerg Care*. 34(11):761-766. doi: 10.1097/PEC.0000000000001014. PMID: 28072668.

Study Description/Background. The aim of this study was to describe the use in detecting genital and extragenital NG and CT in children and adolescents assessed for SA. Purposes included (1) description of the use of a specific NAAT, TMA, in detecting NG and CT from genital and extragenital sites of children and adolescents presenting for acute and nonacute medical evaluations for suspected SA and (2) to examine the concordance of patient history and examination factors relating to SA.

Literature Review. 25 references; 2 within 5 years of publication, some are seminal works but most our outdated. We know that child abuse literature has gaps and the specialty is still relatively newer.

Design/Methods. Retrospective medical records review.

Sample. Consecutive sample of 1805 children and adolescents who presented to a children's hospital ED and an affiliated outpatient SA assessment center for a 30-month period from March 2011 to September 2013.

Analysis. Data were retrospectively abstracted from clinical records by 2 reviewers and subsequently exported into STATA. Descriptive statistics were computed.

Results/Limitations. Of those with positive CT results, 99 (95.2%) were female

patients; all patients with a positive NG result were female. Three of the 33 positive NG results and 13 of the positive CT results were in children 11 years and younger. Two positive NG and 11 positive CT tests were in prepubertal children. 155 (8.8 %) had acute genital (129) and/or anal injuries (40), and 31 (1.75%) had healed genital injury (all healed hymenal transections); no healed anal injuries were observed. Five of the 28 with NG infections had acute genital injury, and 4 had healed genital injury; 17 of the 86 patients with CT infections had acute genital injury, and 7 had healed genital injury. One of the 12 patients with anal NG had acute anal injury, and 1 of the 46 patients with anal CT had acute anal injury. One of the patients with oral NG had oral injuries. Acute genital injury was associated with CT infection, and healed genital injury was associated with NG infection, as well as CT infection.

Not all patients were tested at all sites; testing decisions were based on clinical findings, patient history, parent history, and clinician judgment. Most clinicians opted to do more tests when the patient was unwilling or unable to provide complete information about the SA. Further testing may have revealed additional, and unexpected, infections. Sample bias: Limited only to patients that presented and no explicit inclusion/exclusion criteria. Unclear about interrater reliability among clinicians at both sites. Not generalizable to children outside of Texas or to gender-diverse adolescents. Genders and ages of perpetrators not listed so can't generalize to specific victim/perp characteristics.

Clinical Significance. Extragenital sites should be considered for testing even if no disclosure; drug facilitated SA and acute or healed trauma should increase suspicion for CT/NG infection. Most patients with a positive anal NG or CT test but no history of anal-penile contact also had a positive vaginal test, supporting the possibilities of contiguous spread and examination site contamination.

Level of Evidence. Level 6

Hardeberg Bach M, Ahrens C, Olf M, Armour C, Krogh SS, & Hansen M. (2024, Jan). EHealth for Sexual Assault: A Systematic Scoping Review. *Trauma Violence Abuse*. 25(1):102-116. doi: 10.1177/15248380221143355. Epub 2023 Jan 11. PMID: 36632639.

Study Description/Background. To authors' knowledge, no previous review has systematically explored the utility of eHealth for SA. Aim was to fill the literature gap by investigating how eHealth is currently used to support adolescent and adult survivors across the globe. The review explored what is known about eHealth interventions targeting survivors' post-assault psychosocial needs, hoping to provide valuable insights into the potentially unique advantages and disadvantages to a broad range of eHealth modalities, including websites, video therapy, intervention videos, mobile apps, virtual reality, chat- and text-messaging services, podcasts, and other formats.

Literature Review. 107 references; 64 within 5 years. No classical works, but topic is relatively newer. References mostly pertained to topic and most from USA.

Design/Methods. An early step in the research involved developing a review protocol to guide the research and secure consensus among authors. The protocol was developed based on key literature on scoping reviews and PRISMA-P was used to structure the protocol. The review seeks to answer the following research question: What is known about eHealth interventions targeting SA survivors' psychosocial needs? The following sub-questions were also posed: (1) What kinds of eHealth interventions are provided to SA survivors today, and which psychosocial needs do they target? (2) How much are eHealth interventions used and what factors influence user-engagement? (3) How is eHealth experienced by survivors and what factors influence user experience? (4) Does eHealth improve psychosocial outcomes for survivors? The systematic search was conducted in CINAHL, Embase, MEDLINE, PsycINFO, and Scopus in November 2021; restricted to 2010 to current to ensure relevancy.

Sample. 85 studies were included in the final review (North America=73, Europe=7, and 5 elsewhere). Inclusion: Studies about eHealth utilization following SA survivors of all genders aged 13 or older, or SA service providers/experts, if focused on survivors' use of eHealth. Included all types of empirical studies published in all languages in peer-reviewed journals and grey literature. Exclusion: eHealth interventions for survivors under 13 years of age and interventions for IPV.

Analysis. Extraction form was specially made for the review. The following data was extracted by the first author and verified by the fifth author: Citation, Country, Population, Methods, and eHealth Intervention. Additional data about interventions, user-experience, user engagement, and effectiveness were extracted by the first author upon availability.

Results/Limitations. 96.4% of websites were found to be "very difficult" or "fairly difficult" to read. Among studies that did provide an explicit psychological aim, most focused on PTSD alone (n=13) or in combination with other conditions (depression, anxiety) (n=15). Among interventions with an explicit psychosocial aim, most focused on substance abuse (n=9). 100% of websites served women; 15% mentioned male SA survivors; only 8% mentioned transgender or sexual minorities and few were in multiple languages or disability friendly. Keeping survivors engaged in treatment over time appears difficult given high dropout. Advantages to eHealth included increased sense of privacy and anonymity, increased flexibility and availability of services, and increased sense of safety and comfort. eHealth should be considered an essential component of comprehensive and contemporary sexual assault service provision. Disadvantages to eHealth were also identified in the review including costs; safety issues; confidentiality issues; technical issues; communication difficulties; discomfort utilizing technology; and LGBTQ and disability inclusivity. Most geared towards a survivor with 9 years of education. Participants in these studies emphasized a need to avoid ambiguous content, impersonal language, blaming language, gender-specific pronouns, and delayed and incomplete responses. Of the 29 studies that investigated if eHealth interventions reduce the negative impacts of sexual assault (and in particular PTSD), at least some positive impacts of eHealth were noted in all studies. Limitations: eHealth is a broad term and search was general so detailed conclusions

cannot be drawn; not generalizable outside North America or for non-English speaking survivors; for most of the studies, only focused on women, quantitative, and had small sample sizes so not generalizable to men or gender-diverse populations, as well as sexual minorities and disabled.

Clinical Significance. E-health may have a need in contemporary treatment options but with considerations. Avoid ambiguous content, impersonal language, blaming language, gender-specific pronouns, and delayed and incomplete responses; eHealth may be hard for survivors that do not have technology access or technology familiarity. eHealth should not replace face-to-face treatment, and interventions should be continuously monitored and evaluated to mitigate disengagement and dropouts. More work is therefore still needed to ensure inclusive and effective solutions for all. Ethical considerations should be given for fraudulent situations and content.

Level of Evidence Level 5

Reference

Melnyk, B. M., & Fineout-Overholt, E. (2015). *Evidence-based practice in nursing and healthcare: A guide to best practice*. Wolters Kluwer.