Journal Highlights

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Gender, Child Maltreatment, and Adult Depression

Compared with nonabused children, children who are maltreated have a higher risk of major depressive disorder (MDD) in adulthood. Studies show that sexual abuse, physical abuse, emotional abuse, and child neglect may lead to adult depression in both men and women. Since depression, in general, is more common in women than in men, it has been asked whether the risk of depression resulting from child maltreatment (CM) differs according to the child victim's gender. Reasons have been proposed for a possible greater vulnerability to depression in such women. Women hold themselves more accountable for the quality of relationships than do men. They suffer more self-blame and shame after experiencing CM. Women may have different coping strategies, may focus on the causes and consequences of their depression, and may be more likely to get diagnosed with MDD.

The few studies that examined the role of gender as a moderator of risk for depression after CM have produced inconsistent results: Some showed no role for gender, others that women were at greater risk. Most of these studies have looked at only one or two types of CM; they have also used CM measures "with unknown psychometric properties" (p. 176). The authors of the present study looked at the influence of gender on the association between CM and depression using a large sample of primary care patients at an HMO. They used a validated measure of CM—the Childhood Trauma Questionnaire (CTQ), an instrument specifically created for retrospective analyses—and measured depression with the Patient Health Questionnaire (PHQ).

Study patients came from various communities in California. They were between 21 and 75 years old and literate in English. Patients with psychosis, bipolar disorder, dementia, or postpartum depression were excluded. Twelve thousand Kaiser Permanente primary care patients were randomly selected for participation in the study; about 5,700 participated and returned completed questionnaires.

Depression was measured with the PHQ, which inquired about the presence of eight symptoms and their frequencies during the previous two weeks. CM was measured by the CTQ, which assesses physical abuse, sexual abuse, emotional abuse, and emotional and physical neglect. There are five items that may be endorsed for each of the five CM types. They are rated on a five-point frequency of occurrence scale. Mean age of study participants with MDD (50.5 y) was younger than those not depressed (53.3 y). Women participants were more likely to be African American and less likely to be married. More women than men reported histories of sexual abuse (26% v 13%) and emotional abuse (34% v 24%). Proportions were not significantly different by gender for physical abuse (~23%), emotional neglect (~35%), or physical neglect (~29%). The prevalence of depression was 8.5% in women and 5.2% in men. More depression was seen in more severe CM.

Logistic regression models were used to test the effects of gender on CM and MDD. Adjustments were made for marital status, age, educational level, and ethnicity. None of the models indicated a gender effect. The correlation between abuse history and current depression was the same for men and women. Of course, because more women reported childhood sexual abuse and emotional abuse, there was a higher proportion of depressed women. Stated plainly, abused women do not have a greater vulnerability to depression than men, but there are more of them.

The authors point out that their cross-sectional study does not permit one to infer causality between CM and MDD. The retrospective nature of the CM assessment runs the risk of faulty recall. They do not know how generalizable their results with HMO members are to other populations. They conclude by stating that men as well as women with histories of CM should be assessed for depression. In addition, some studies show that depressed patients with histories of CM respond better to psychotherapy than to pharmacotherapy. Knowing about a CM history may thus influence the mode of treatment.

Arnow, B. A., Blasey, C. M., Hunkeler, E. M., Lee, J., & Hayward, C. (2011). Does gender moderate the relationship between childhood maltreatment and adult depression? *Child Maltreatment, 16*(3), 175–183.

Screening Tool for Sexual Assaults

About 67,000 children in the U.S. were sexually abused in 2009. Often, these children are taken to an Emergency Department (ED) for evaluation of the alleged sexual abuse. EDs may be busy, noisy places—settings that are not the best for an initial evaluation of a distressing problem. Studies show that even in pediatric EDs there is sometimes no documentation of the genital examination and no testing and prophylaxis of sexually transmitted diseases (STD) or pregnancy. However, children who are evaluated for sexual assault at a child advocacy center (CAC) are more likely to have a complete physical examination, a genital examination, tests and prophylaxis for STDs, and referral for counseling. Thus, EDs provide immediate evaluation, but the evaluation may not be optimal when established guidelines are used as a standard.

The rationale for an ED visit is the need for rapid evaluation of injuries and STDs, the need to recover forensic evidence, to assure the child's safety, and to evaluate emotional problems resulting from the assault, including suicidal ideation or plan. The study authors devised a screening questionnaire that sought to determine which prepubertal children with a complaint of sexual assault could have their initial evaluation in a place other than an ED, that is, in a CAC. They evaluated 2 years of medical records from two pediatric EDs and a CAC, all part of one healthcare system, looking at children 12 years old and younger. The record was reviewed to answer these questions: (1) Did the incident occur in the last 72 hours with oral, genital to genital, or genital to anal contact? (2) Did the patient have genital or rectal pain, bleeding or discharge, or known genital injury? (3) Was there an immediate concern for the child's safety? and (4) Was there an unrelated emergency medical condition present? Data were collected from all contributors to the medical record: triage nurses, sexual assault nurse examiners, social workers, and ED and CAC physicians. An answer of "yes" to any of these questions was a positive screen, requiring immediate evaluation. A high-risk patient (not synonymous with a screen-positive patient) had physical examination findings (trauma or infection), a change in custody or institution of a safety plan by child protection or law enforcement authorities, or an emergency medical condition requiring intervention.

The charts of 163 patients were reviewed and 90 (55%) had a positive screen. More than two thirds of these 90 were positive because of genital or rectal pain, bleeding, or discharge; 44% because of time <72 h and mucosal contact; 22% for a safety concern; and 9% for an emergency medical condition. Screen-positive and screen-negative patients were similar in age, gender, and ethnicity. Medical records after CAC evaluation showed that 56 of the 90 screen-positive patients were classified as high risk. No negative-screen patients were ultimately found to be high risk.

Thus, the screening tool had a sensitivity of 100%, a specificity of 68%, a negative predictive value of 100%, and a positive predictive value of 62%. The authors suggest that patients with a negative screen might benefit from "timely evaluation" in the less stressful, more thorough CAC, since there is no medical emergency requiring them to have an ED visit. This will also lighten the load on EDs (while increasing the load on CACs—editor). EDs and general pediatric clinics might use the screening tool for triage, to determine who needs immediate evaluation and who can be referred to a CAC on a nonemergent basis. The authors indicate that their screening questionnaire needs prospective evaluation to confirm its utility.

Floyed, R. L., Hirsch, D. A., Greenbaum, V. J., & Simon, H. K. (2011). Development of a screening tool for pediatric sexual assault may reduce emergency-department visits. *Pediatrics, 128*(2), 221–226.

Estimating the Probability of Abusive Head Trauma

The most common type of fatal child abuse is abusive head trauma (AHT). Usually infants are the victims. These children have an intracranial injury (ICI) without an adequate explanation for the injury. The physician must in such cases determine which children with ICI need investigation and then attempt to distinguish between abusive and nonabusive head trauma (nAHT). In addition to the medical evaluation, a multidisciplinary team must gather and synthesize all pertinent information to determine the likelihood that the ICI is the result of abuse. The consequences of mistaking AHT for nAHT, or vice versa, may be enormous and irrevocable.

Recently, articles in the lay press, as well as in legal and medical journals, have questioned the validity of the clinical diagnosis of AHT. There is, then, a need for a valid, agreed-upon scientific basis to aid in making a diagnosis of AHT. The authors performed this study to propose a method of estimating the probability of AHT given different clinical findings in a child with ICI.

The authors based their work on six published studies of head injury (both nAHT and AHT) describing a total of 1,053 children, of whom 348 had AHT. They contacted the authors of the six papers for additional needed details not included in the articles. The six studies included children younger than 3 years old with any combination of subdural, subarachnoid, or extradural hemorrhage, intraparenchymal injury, cerebral contusion, diffuse axonal injury, hypoxic ischemic injury, and/or associated cerebral edema. The study authors looked for the presence of the following clinical features in these children with ICI: apnea, retinal hemorrhages, rib fractures, long bone fractures, skull fractures, seizures, and head/neck bruising. Skull fracture was found to have no predictive value and was omitted from the final analyses.

Using strict definitions, a diagnosis of AHT was considered valid after "comprehensive evaluation of all medical and social features, after a multidisciplinary assessment of the full case details and, in many cases, by 'finding of fact' in care or criminal legal proceedings or a perpetrator admission" (p. e558). Cases that were indeterminate or "suspected abuse" were not included in the AHT category. The authors performed sophisticated statistical analyses of the data with a five-page appendix describing the statistical methods used.

The study showed that when a child younger than 3 years had an ICI without any of the other clinical features (apnea, fractures, etc.), the probability of AHT was about 4%. The authors then describe probabilities and odds ratios (OR) for AHT in the presence of ICI and one clinical feature: the OR is ~45 with a rib fracture (probability of AHT of 65%), the OR is ~35 with retinal hemorrhages (probability of AHT of 58%). Apnea with ICI had about a 25% probability of indicating AHT.

When multiple clinical feature are present along with ICI, the probability of AHT depends very much on the specific features present. If, for example, a child with ICI had apnea and retinal hemorrhages, the probability of AHT was 90%. If a child with ICI had apnea and head or neck bruising, the probability of AHT was about 54%. When rib fractures or retinal hemorrhages were present with any one of the other features, the OR for AHT was >100 and the probability of AHT was >90%. When three or more of the clinical features were present, ORs were >100 and the probability of AHT was >85%. The authors present tables showing the 64 possible combinations of clinical features and the ORs and probabilities for each combination.

These estimates of probability may provide a valid foundation with which to support clinical opinion. In this way, they may help in deciding whether (and how much of) a work-up is needed for a given child. They may help the clinician explain in court why certain combinations of findings have a lesser or greater chance of predicting abuse.

Maguire, S. A., Kemp, A. M., Lumb, R. C., & Farewell, D. M. (2011). Estimating the probability of abusive head trauma: A pooled analysis. *Pediatrics, 128*(3), e550–e564.

Detection of Human Papillomavirus in Sexually Abused and Nonabused Children

Genital infection with human papillomavirus (HPV) is the most common sexually transmitted infection (STI) in the United States. The infection may be asymptomatic, produce genital warts, or lead to genital cancers. If perinatal transmission can be excluded, the presence of an STI in a child is considered evidence of child sexual abuse (CSA). By the age of 18 years, 12%–25% of girls and 8%–10% of boys in the U.S. will have been sexually abused. Not enough is known about the epidemiology of HPV transmission in children, and it is not currently possible to equate HPV detection with CSA. Studies have found the prevalence of genital HPV detection in children to vary 5%–33%. There is also some belief that much childhood HPV infection is the result of nonsexual transmission (e.g., parents with warts on their hands transmit the infection to infants during diaper changes, or children with warts on their hands inoculate their own genitals). The study authors attempted to characterize the epidemiology of HPV genital infection in children without previous consensual sexual activity by studying children being evaluated for CSA. They compared HPV prevalence with certainty of CSA, maternal and child history of genital and nongenital warts, and demographic factors.

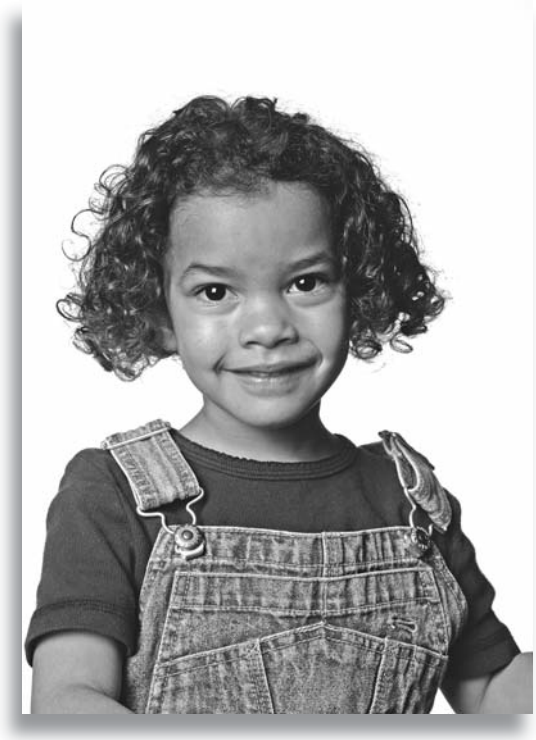
Study subjects were recruited from eight sites in four states. One site was a pediatric emergency room and the rest were child advo-

cacy centers. Histories, physical examinations, and STI testing (for Chlamydia, gonorrhea, syphilis, HIV, and hepatitis B) were done. Both boys and girls were recruited from one site; the other seven recruited girls only. Maternal STI history, including the presence of genital warts before, during, and after the pregnancy, was obtained. A history of nongenital warts in caregivers and in the child was also obtained. A comparison group of children presenting for reasons unrelated to CSA was recruited to ensure the presence of adequate numbers of nonabused children for data analysis. Physicians skilled in diagnosing CSA determined the likelihood of abuse on the basis of history, physical examination, and the presences of STIs (not including HPV). CSA certainty was considered "definite," "probable," "possible," or "no evidence of CSA," using published criteria. HPV genital infection was positive if HPV DNA was found by polymerase chain reaction testing in participant urine sample or genital swab.

The study population included 534 children evaluated for CSA, and 14 had genital warts. The comparison (control) group had 42 children. The age range of the patients was 6 months to 13 years. Girls were more likely to have evidence of CSA than boys (87% v 75%; p=.051). Subjects aged 10 years or older were more likely to have evidence of CSA than younger ones (92% v 82%; p=.002). Most subjects (83%) had urine and genital swab specimens analyzed for HPV. Some had only a genital swab or a urine specimen. There were 517 subjects with adequate specimens, of whom 438 were considered to have some evidence of abuse and 79 were considered to have no evidence of CSA. HPV was detected in 12% of subjects (and in 11% of those without genital warts).

HPV detection did not differ if the mother had had either genital warts or hand warts or not. Children with evidence of CSA were 10 times more likely to have genital HPV (13.7%) than those without evidence of CSA (1.3%). HPV detection rates varied with the certainty of the CSA classification: 8.4% in possible CSA, 15.6% in probable CSA, and 14.5% in definite CSA. These findings did not change when patients with genital warts were excluded. CSA was the strongest predictor of HPV detection. Older age was also independently associated with HPV detection.

The authors indicate that increasing HPV detection in the older children and lack of association of maternal history of genital warts do not support the notion of perinatal transmission in children older than 2 years, although they wish they had more younger children in the study. They also make the observation "that there is no gold standard for the determination of CSA" (p. e683) which leads to some uncertainty in evaluating results. They conclude by stating that their goal was to characterize the epidemiology of HPV infection in children without previous consensual sexual activity, not to assess the utility of HPV detection in diagnosing CSA.



Unger, E. R., Fajman, N. N., Maloney, E. M., Onyekwuluje, J., Swan, D. C., Howard, L., Beck-Sague, C. M., Sawyer, M. K., Girardet, R. G., Hammerschlag, M. R., & Black, C. M. (2011, September). Anogenital human papillomavirus in sexually abused and nonabused children: A multicenter study. *Pediatrics, 128*(3), e658–e665.

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