

At-A-Glance: Recent Research Findings

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Using Insects as “Tools” in Criminal Investigations

NIJ final report, research report, and journal article. Available from NCJRS.

When a death occurs under suspicious circumstances, knowing the time of death can be important to the criminal investigation. One way for investigators to pinpoint the time is to use insects as “tools” to deduce how long the body has been decomposing. In the decomposition process, certain insects infest the remains at predictable times after death.

Investigators need a body of information about the types of insects and their times of arrival, departure,

and replacement by others to determine time of death with precision. Building this body of knowledge requires intensive experiments on human cadavers, but because most States require embalming and burial or cremation very soon after a person dies, animals are substituted. An NIJ-funded study currently is examining the critical question: How comparable are animals to humans for these types of experiments?

The goal of the study is to determine whether pigs, the type of animal most often used in the experiments, are appropriate test animals. At a facility in Tennessee, where State law regarding burial requirements differs from most other States, researchers use human and

pig cadavers and compare insect infestation on each.

Pigs Are a Useful Model

Among the study's findings are that:

- The human and pig cadavers attract virtually the same types of insects.
- As decomposition progresses, the sequence in which different types of insects infest the bodies is the same in the human and pig cadavers.
- Insects important to forensic testing were abundant and easy to see on and around the cadavers. The implications are that even people who have little training should be able to recognize and collect the insects that are important to the investigation.
- Collecting by hand, rather than by netting or trapping, yields the largest number of forensically important insects in both the pig and human cadavers.

Overall, pigs were found to be comparable to humans for testing purposes. However, as the period of time of exposure to the elements lengthened, the similarities in the decomposition process between the two cadavers decreased. The researchers proposed that a pig larger than the 50-pound test animal—one closer in size to a human adult—might better parallel human decomposition beyond the first 10 days after death. Preliminary results of a 1998 follow-up study, in which pigs as large as 200 pounds were used, suggest that the larger animals are in fact more comparable to humans than are the smaller ones.

Using DNA to Identify Insects

In a complimentary study, NIJ-sponsored researchers are using DNA analysis to identify insect species. The need for this research arises from the difficulty of distinguishing among certain types of insects in their immature stages (for example, eggs or larvae).

The researchers' aim is to develop a DNA typing system that will confirm standard identification methods.

The researchers also note the need to determine whether some species newly introduced to North America, which in appearance are similar to certain native species, can be identified by DNA analysis.

For more information, see:

- Schoenly, Kenneth G., and Neal H. Haskell, "Testing Reliability of Animal Models in Research and Training Programs in Forensic Entomology," final report submitted to NIJ, September 30, 1996. This report is available from NCJRS. Refer to ACCN 173045.
- Wells, Jeffrey D., and Felix A. H. Sperling, "Molecular Phylogeny of *Chrysomya albiceps* and *C. rufifacies* (Diptera: Calliphoridae)," *Journal of Medical Entomology* 36(2):1-4. This article is available from NCJRS through paper reproduction for a fee or through interlibrary loan. Refer to NCJ 177410.
- *National Guidelines for Death Investigation*, Research Report, Washington, D.C.: U.S. Department of Justice, National Institute of Justice, December 1997. This report is available on the NIJ Web site or from NCJRS. Refer to NCJ 167568.

Police Discretion in Fixing "Broken Windows"

NIJ Research Report, "Broken Windows" and Police Discretion, George Kelling, October 1999, NCJ 178259. Available on the NIJ Web site and from NCJRS.

The past two decades have seen growing awareness of the complexity of police work, an examination of the use of discretion in officers' daily policing activities, and a better understanding of the critical role community leaders play in the vitality of neighborhoods.

Noted criminologist George L. Kelling has been involved in practical police work since the 1970's, working day-to-day with officers in numerous agencies in all parts of the country and serving as an advisor to communities, large and small, looking for better ways to integrate police work into the lives of citizens.

In a new NIJ Research Report, "Broken Windows" and Police Discretion, Kelling discusses the issues of policing guidelines, rules, and the use of discretion in the maintenance of public order and safety. In the context of the "broken windows" metaphor, proposed by James Q. Wilson and Kelling in 1982 in the *Atlantic Monthly*, this Research Report details how an officer's sensitive role in order maintenance and crime prevention extends far beyond just arresting lawbreakers—officer discretion exists at every level of the police organization.

Historically, police have asserted authority in many ways, often having nothing to do with arrest. Kelling takes a special interest in the use of discretion to exercise the core police authority, enforcement of the law. He wants to better understand why officers make arrests in some

circumstances and not others, especially when they are dealing with the more mundane aspects of policing—such as handling alcoholics and panhandlers and resolving disputes between neighbors.

Kelling notes that police officers themselves often are unable to articulate the precise characteristics of an event that led them to act as they did. He maintains that officers must exercise discretion in such situations.

But giving police officers permission to use their professional judgment is not the same as endorsing random or arbitrary policing. In Kelling's view, policing that reflects a neighborhood's values and sense of justice and that is sensitive to residents' concerns is more likely to do justice than policing that strictly follows a rule book.

The report outlines several key principles policymakers can consider as they develop and implement policies and guidelines for police practices, emphasizing that an important starting point is a recognition of the complexity of police work and an acknowledgment that officers must use their own judgment and that rules must allow for flexibility.

Kelling advises involving both practicing police officers and citizens in developing policy statements, guidelines, and rules of conduct.

Reducing Gun-Related Crime

NIJ Research in Progress Seminar, "Tailoring Law Enforcement Responses to Youth Firearm Violence," Terrence Dunworth (NCJ 173958). Available on videotape from NCJRS

A project to assess the effectiveness of strategies to reduce firearms violence among youth is nearing com-

pletion. The Youth Firearms Violence Initiative was created in 1995 by the Office of Community Oriented Policing Services to support targeted, focused community policing enforcement aimed at reducing firearms violence committed by young people.

In conjunction with the Office of Community Oriented Policing Services, NIJ is supporting an evaluation of the Initiative.

Terrence Dunworth and his colleagues at Abt Associates Inc. are in the final phases of completing the evaluation in 10 cities.

The evaluation focused on implementation and operation in five of the cities (Birmingham, Alabama; Bridgeport, Connecticut; Milwaukee, Wisconsin; Richmond, Virginia; and Seattle, Washington) and on crime impact and process issues in another five (Baltimore, Maryland; Cleveland, Ohio; Inglewood, California; Salinas, California; and San Antonio, Texas).

Variation in Sites

The researchers found that a number of factors vary considerably from site to site:

- The strategic emphasis (traditional enforcement or prevention and education).
- The tactical approach to enforcement (saturation or directed patrol, search warrants, probation stops and searches, knock and talk, bar checks, use of informants).
- Police organizational structure (dedicated full-time units or staffing by rotation with overtime).

- The geographic focus (citywide or defined target areas).
- The population targeted (general population, gangs, or identified individuals).

The evaluation found considerable variation in the number of arrests made (less than 100 to more than 250). To a large extent, the choices the sites made in strategy and tactics influenced the number of arrests and seizures. A city that emphasized prevention and education, for example, had fewer arrests and seizures than one that emphasized traditional enforcement techniques, such as patrol and stop and search.

Can Intervention Reduce Gun Crime?

In half of the cities where an impact evaluation was conducted, a relationship between the intervention and gun-crime trends was evident. In the remainder, changes in the target area did not differ much from trends in the city at large.

Using data from Salinas, California, the researchers examined the 2-year relationship between gun-related arrest rates and subsequent gun-related crimes, taking into account the total level of crime (the crime index) in the surrounding county.

The researchers found that gun crimes, the general crime index, and gun-related arrests were related as follows: A 10-percentage point increase in the crime index was associated with one additional gun crime in Salinas, California, and an increase of five gun-related arrests was associated with one less subsequent gun crime in that town.

Restraining Orders May Be Key to Uncovering Current Violence

Journal article, "Restraining Orders" A Frequent Marker of Adverse Maternal Health," Pediatrics, L. Oriana Linares, ACCN 179865. Available from NCJRS interlibrary loan.

Knowing a woman's past use of restraining orders may be a clue to understanding her current experiences with interpersonal violence. In a study conducted by a team at the Boston University School of Medicine, the researchers found that inquiring about past use of restraining orders (RO's) may be an effective method for pediatric care providers to assess a woman's risk for current interpersonal violence and may be a first step toward offering assistance and safety to the mothers and their children.

L. Oriana Linares and her colleagues Marilyn Augustyn, Elisa Bronfman, Joshua Greenberg, Betsy McAlister Groves, and Barry Zuckerman of the Boston University School of Medicine published their findings in *Pediatrics*, a scholarly journal published by the American Academy of Pediatrics.

Does Past Victimization Reveal Current Victimization?

The authors hypothesized that because interpersonal violence involves enduring patterns of behavior, rather than isolated interpersonal events, it is likely that victimized women—or those women in the sample who reported past use of RO's—may be more likely than nonvictimized women—those who

did not report past use of RO's—to experience current victimization. Yet victims of interpersonal violence often do not disclose their victimization for reasons of shame, denial, fear of retaliation, or financial dependence on an abuser, making it difficult for health care providers to identify their needs and offer appropriate assistance.

The researchers studied 160 mothers living in five high-crime neighborhoods in Boston and found that women who had used an RO in the past experience higher current partner verbal aggression and physical violence, poorer health, and a higher number of post-traumatic stress-related symptoms compared to women who have not filed RO's in the past.

The researchers drew their sample from participants in a larger study about the impact of community violence on mother-child relations. These women were selected from patients who received pediatric primary care at a large urban teaching hospital from 1996 to 1998.

Mothers Were Asked About RO's and Violence

The mothers were interviewed in their homes, alone and face-to-face, by one of two female interviewers. In 89 percent of the cases, the partner was not home at the time of the interview.

The women were asked the following information:

- If they had ever filed an RO.
- The nature of their relationship with the defendant.

- The number of times they had filed an RO and the year or years of filing.
- Whether the defendant in the RO was the current partner.

To obtain information about the types of abuse the women may have experienced, the interviewers asked the women their reason or reasons for obtaining an RO. The researchers coded the answers to this question for four different types of abuse: Verbal harassment, verbal threats or intimidation, physical assault, and destruction of property.

Findings

Among the 160 women, 64 (40 percent) reported having used an RO. Among the defendants in these RO's, 43 percent were ex-boyfriends or ex-husbands, 38 percent were boyfriends or husbands, 13 percent were friends or relatives, and 7 percent were someone known to the woman. Twenty percent of the women had filed more than one RO. Among the 52 women who had filed an RO against a partner, 20 (38 percent) reported that this person was their current partner.

The women reported filing RO's for the following reasons:

- 57 percent for physical assault.
- 39 percent for verbal harassment.
- 37 percent for verbal threats or intimidation.
- 4 percent for destruction of property.

Reasons for filing involved single types of abuse in 72 percent of the cases and multiple types of abuse in 28 percent of the cases.

Mothers in the RO group reported higher partner verbal aggression, higher physical violence, and more symptoms related to post-traumatic stress disorder than non-RO mothers.

Among children, the researchers found slightly higher rates of current partner verbal aggression toward the children of women in the RO group. There was no difference between the two groups in the percentage of women who reported that their children had been physically abused by a current partner.

The authors conclude that inquiring about past use of an RO may be an efficient tool for pediatric care providers in identifying and referring women who are at risk for poor health and for an array of psychological symptoms, particularly those related to post-traumatic stress disorder. However, the authors note that it is likely that the results may not apply to mothers who, although experiencing interpersonal violence, presently or in the past, did not file an RO. These women may be at a different stage of confronting the violence in their lives, say the authors, and may be in greater need of identification and clinical intervention.

The full text of the article "Restraining Orders: A Frequent Marker of Adverse Maternal Health," appeared in *Pediatrics* 104(2) (August 1999): 249–57.