

THE NDACAN

# UPDATA

Volume 5, Fall 1994

**National Data Archive on Child Abuse and Neglect (NDACAN)**

Family Life Development Center

Cornell University, College of Human Ecology

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## **The Timing of Academic Difficulties Among Maltreated and Non-Maltreated Children**

By Elizabeth Rowe, M.A.

*Editor's Note:* The research presented in the following article was done with a dataset which is available from the Archive. See study number NDACAN Dataset Number 59 on the enclosed order form or contact the Archive for more information.

In research on the impact of maltreatment on developmental outcomes, the issue of timing has received only minimal treatment. While we know that maltreated children are at higher risk of maladaptation, questions such as "When is maladaptation most likely to occur?" and "How is the timing of maladaptation linked to maltreatment?" have yet to be addressed.

During a child's elementary school years a major developmental task is adaptation to the school environment (Sroufe & Rutter, 1984). Despite the importance of academic achievement, there have been few studies that have examined the impact of maltreatment on academic outcomes such as grades and grade repetitions. Eckenrode et al. (1993) Leiter & Johnsen (1994), and Wodarski et al. (1990) found that maltreated children had lower grades and a higher incidence of grade repetitions than non-maltreated children (see UPDATA, Spring 1992). While these studies establish a link between maltreatment and academic difficulties, they do not address the timing

of academic difficulties.

The research reported here addresses such timing issues. For example, "When are the periods of highest risk for receiving poor grades and grade repetitions and do they vary for maltreatment subgroups?" and "Is the level of risk constant or varied across grade levels?" Also, while we know that maltreatment, gender, and SES are all predictive of academic achievement, it is not clear whether all groups share the same periods of greatest risk or whether the proportion of risk is constant across time.

The above questions are important for two reasons. First, there are implications for intervention. It is useful to know when children are at risk of some negative outcome so that intervention occurs at the proper time. Secondly, these questions form the beginnings of a developmental model of maltreatment as a risk factor.

Survival analysis is a technique that has been used by social scientists to analyze the timing of events (Singer & Willett, 1991, 1993; Willett & Singer, 1991). In contrast to more traditional analytic methods (e.g., regression, ANOVA), survival analysis focuses on the varying conditional probability that an event will occur. Time becomes the dependent variable. In a survival curve the number of people who have survived (not had the event occur) at each time is plotted. For a hazard curve, the probability that an event will occur (given that it has not yet occurred) is plotted for each point in time. Both survival and hazard curves can be plotted for the entire population or for subgroups (e.g., maltreated and non-maltreated). The curves can be compared both graphically and statistically to assess differential risk due to group membership and differential timing effects.

## Methods

A subset of 644 children was drawn from the matched sample used in Eckenrode et al. (1993). In this study, all school age children enrolled in public schools in 1987-1988 ( $n = 8569$ ) in an upstate New York city who had a history of maltreatment were identified through a search of Department of Social Services records. These children were matched with a group of non-maltreated children on gender, school attended, grade level, neighborhood of residence, and, where possible, classroom (cf. Eckenrode, et al., 1993, for details of sampling). The subset of children used in this study was chosen based on the completeness of their school records.

For illustrative purposes, grade repetitions and math grades were chosen as the outcomes of interest. For grade repetitions, duration was the time in school until a grade repetition. For math grades, duration was the time in school until a D or F or U (unsatisfactory) was received in the subject. For each outcome, survival and hazard curves, with their respective 95% confidence intervals, were plotted for the entire population as well as for maltreated and non-maltreated children.

## Results

For grade repetitions, 57% of all children are not expected to repeat a grade by the end of the sixth grade. Separating the maltreated from the non-maltreated children resulted in significantly

different survival and hazard functions for the two groups. Survival curves show that 69% percent of the non-maltreated and 44.5% of the maltreated are expected to complete the sixth grade without a grade repetition. The hazard curves in Figure 1 show that the time of highest risk of repeating a grade for non-maltreated children is second grade whereas for maltreated children the hazard peaks in the first grade.

Forty seven percent of all children are expected to complete the sixth grade without receiving a D, F or U (unsatisfactory) in mathematics. In the subgroup analysis, 37% of the maltreated and 55% of the non-maltreated children are expected to finish sixth grade without repeating a grade. The times of greatest risk for all children were kindergarten and first grade. Figure 2 illustrates that kindergarten and first grade were the time periods of highest risk for maltreated children whereas kindergarten and fifth grade were the times of highest risk for non-maltreated children. Maltreated children displayed a higher risk of receiving their first poor math grade across all time periods except the sixth grade.

## Discussion

Although these results are primarily descriptive, they tell us a great deal more than traditional statistical measures such as means. For instance, while finding that maltreated children are at higher risk of academic difficulties than non-maltreated children is not surprising, these results suggest that each group's periods of highest risk may depend upon the outcome of interest. Research in progress addresses the impact of moderators such as gender and SES. This research also incorporates these covariates into statistical models of the hazard functions of each outcome using discrete time survival analysis (Singer & Willett, 1993). Future research will extend these techniques to school oriented outcomes such as problem behavior.

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## **ANNOUNCING A NEW RESOURCE: NDACAN GOPHER/FTP SERVER**

By Patrick Collins

The Archive has recently established a Gopher and FTP server on the Internet. Gopher is a distributed information system that allows Internet access to information on thousands of computers worldwide. Card catalogs, books, periodicals, legal documents, and scientific papers are just a few of the many resources that can be browsed using Gopher. The Gopher system allows for browsing and searching of text-based and multi-media information using an integrated point and click interface. Dynamic links connect many of the Gopher servers and make it appear to the user as if all the information is stored on a single computer. Thus, retrieving information from another continent is as easy as retrieving information from your local Gopher server.

The information on the Archive's Gopher server will also be available via anonymous FTP. FTP or File Transfer Protocol is the standard method of moving files from one computer to another on the Internet. With the proper privileges and software it is possible to transfer a file from a computer in New Zealand to one in Ithaca at a very high speed. For a typical word processing document of ten pages the transfer would normally take five to ten seconds. Anonymous FTP is a way of allowing public access to information on special computers called FTP servers. By setting up an anonymous FTP server individuals and organizations can make a wealth of information publicly available to the Internet community. While FTP is not considered as user friendly as Gopher, it is available to a larger number of Internet users.

### Background

Gopher and FTP are designed to run in a distributed ("client-server") computing environment. In such an environment, client computers run software that allows them to access information and services on other computers designated as servers. For example, the Macintosh on my desktop can be viewed as a client and the Archive's Gopher server across the hall as a server. When I want to read about the Archive's holdings, I can run Gopher client software on my computer and view the information stored on the Gopher server across the hall. While in this example both computers are Apple Macintoshes in the same building, the type of computer and its physical location are largely irrelevant as long as each machine has the proper software and is connected to the Internet. Thus, the ability to distribute and access Gopher and FTP based information is

not limited to users of one type of computer.

### Access to Gopher

Access to Gopher is available to those with a direct Internet connection as well as to subscribers to America Online, CompuServe and many other commercial network services. If your Internet access is through a commercial on-line service, you will probably not need any special software - the Gopher client software is usually built into the user interface. If you work on a personal computer or workstation with access to the Internet through a local area network or SLIP connection you will need to obtain Gopher client software for your machine. The original Gopher software was developed in 1991 by the University of Minnesota Microcomputer, Workstation, Networks Center. Since then, many other individuals and universities have developed their own versions of Gopher software and the client software is now available for almost all types of computers. It is distributed free to non-profit institutions and businesses that want to make their information available to the public. The best way to obtain the software is through the Internet. The University of Minnesota's anonymous FTP server ([boombox.micro.umn.edu](http://boombox.micro.umn.edu), [/pub/gopher](ftp://boombox.micro.umn.edu/pub/gopher)) is one of many that have the Gopher software.

### NDACAN Gopher Server

The Archive's Gopher server is in its infancy. Available at the present time are information about our products and services (e.g., Listserv, Summer Research Institute), our publications (e.g., Technical Standards Manual), and data documentation (including codebooks, user's guides, and frequencies) for several of the most popular data sets in the Archive. In the future we hope to make available all documentation and data for the Archive's holdings, an archive of the postings to the Child Maltreatment Listserv, a directory of child maltreatment researchers, and a database of instruments used in child maltreatment research. If you have information you would like to make available or ideas about what should go on the server please contact the Archive.

To access the NDACAN server using Gopher, point your Gopher client to <gopher.fldc.cornell.edu> (port 70). If you have trouble connecting, try using the IP address: 132.236.157.101. The "National Data Archive on Child Abuse and Neglect" folder should appear along with folders for several of the other projects of the Family Life Development Center (parent organization of the Archive). Inside the NDACAN folder you will find folders for the publications, data sets, and services of the Archive.

To access the NDACAN server using FTP, FTP to [gopher.fldc.cornell.edu](ftp://gopher.fldc.cornell.edu) (132.236.157.101) and login as anonymous. Use your Email address as your password. The Archive's information is in the "National Data Archive on Child Abuse and Neglect" directory.

The NDACAN server is under construction and the organization of its contents will change from time to time. New information will be posted regularly. If you have questions about Gopher or problems accessing the NDACAN server, contact Patrick Collins (phone: 607-255-0949, Email: [ptc1@cornell.edu](mailto:ptc1@cornell.edu)).

*Patrick Collins is the Project Director of the National Data Archive on Child Abuse and Neglect at Cornell University.*

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## **UPDATE ON THE THIRD NATIONAL INCIDENCE STUDY OF CHILD ABUSE AND NEGLECT**

By Patrick Collins

The Third National Incidence Study of Child Abuse and Neglect (NIS-3) is nearing completion. This study, sponsored by the National Center on Child Abuse and Neglect (NCCAN), is designed to estimate the total number of children who are abused or neglected in the United States, and to indicate the degree to which this number has changed since the Second National Incidence Study was conducted in 1988.

NIS-3 employs the same basic sentinel design as the first two incidence studies with several methodological improvements. The study will span 42 counties and will involve approximately 800 CPS and non-CPS agencies such as hospitals, law enforcement agencies, schools, and day care centers. Over 4000 individuals within these agencies will participate in the study. One major difference between NIS-3 and the previous incidence studies is the addition of a court referral study. The purpose of this additional study component is to estimate the incidence of substantiated child abuse and neglect cases that result in civil and criminal court proceedings and determine the characteristics of such cases. This will involve abstracting case records on a random sample of 2,500 substantiated CPS cases. In addition, interviews will be conducted with representatives of the prosecutors and courts in each of the 42 NIS-3 counties.

As with the first two national incidence studies, NCCAN has contracted with Westat, Inc. of Rockville, Maryland to conduct the study. Westat is planning to deliver a draft version of the NIS-3 final report to Congress on June 30, 1995. The final report will be completed by August 31. Both the draft and final versions of the report will be available from the NCCAN [Child Welfare Information Gateway](#)..

In early July 1995, Westat will provide the Archive with the NIS-3 public use dataset and documentation. As with NIS- 2, the Archive will convert the dataset to a variety of file formats for distribution to microcomputer and mainframe users. The Archive will disseminate the data to the public and provide technical support to data users. The Archive will announce the availability of the NIS-3 data on Child- Maltreatment-Research-L (the Archive's listserv) and in the next issue of The Archive Update.

For more information about the NIS-3 study design contact Joan Gaffney, Government Project Officer, National Center on Child Abuse and Neglect, 330 C Street, SW, Room 2006A, Washington, DC 20201, phone: 202-205-8910. Patrick Collins is the Project Director of the National Data Archive on Child Abuse and Neglect at Cornell University.

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**NEW DATASETS AVAILABLE**

*Family Structure and Functioning in Neglectful Families, 1991-1993*  
James M. Gaudin Jr. and Dr. Norman Polansky  
NDACAN Study Number: NDACAN Dataset Number 66

This study identifies differences in family structure and functioning between neglectful and similarly situated (low income) non-neglectful families within selected counties in Georgia. The study examines: (1) the relationship between family coping skills (e.g., problem solving, conflict, communication, emotional expressiveness, cohesion, leadership, negotiation, exercise of power) and neglectful parenting; (2) the relationship between drug and alcohol abuse and neglectful parenting; and (3) the role that men play in neglectful and non-neglectful families. The investigators also examined the effects of race, chronicity of neglect and personality factors on family functioning. Stratified sampling was used to match the neglect and comparison families with regard to SES, race, and single parent status. Neglect families were recruited from active Child Protective Services cases and all met the following criteria: (1) the primary identified problem was neglect (NIS-2 definitions of neglect were used); (2) neglect was substantiated upon investigation; (3) there was at least one child between the ages of 5 and 17 living in the home; and (4) there was no identified incest. Comparison families living in the same counties as neglect families were selected from AFDC families involved in employment preparation programs and from Head Start families. Comparison families had not been reported to DFCS for neglect or abuse and caseworker assessments using the Child Well-Being Scale (Magura & Moses, 1986) did not indicate neglect. Data were collected from 103 neglect and 102 comparison families using caseworker assessments and in-home interviews employing both standardized and non-standardized measures. In addition, 92 neglect and 95 control families were videotaped interacting around assigned tasks in their homes. Tapes were rated by blind observers using three standardized family measures.

*Victimization and Other Risk Factors for Child Maltreatment Among School-Age Parents: A Longitudinal Study, 1988-1992*  
Debra Boyer and David Fine  
NDACAN Study Number: NDACAN Dataset Number 67

This is a descriptive longitudinal field study of risk factors in the etiology of child abuse and neglect among adolescent parents. The investigators examined sexual and physical victimization prior to pregnancy as major antecedent factors of abuse. Pregnant and/or parenting adolescents were recruited from ongoing educational and social programs in the state of Washington. The sample consisted of 535 adolescent females who were 17 years old or younger at the time of their first pregnancy, and 21 years old or younger at the time they completed the survey. The data for this study were collected in three phases at approximately one year intervals which included: 1) baseline surveys, 2) follow-up surveys, and 3) a review of Child Protective Services case records. In addition, focus group data were collected throughout the research period (1988-1992). These data allow for examination of the inter-relationship between: 1) sexual abuse, 2) adolescent pregnancy, and 3) child maltreatment by adolescent parents.

*These datasets will be available on floppy diskettes or via File Transfer Protocol (FTP) for a variety of computer platforms. Please contact the Archive for further information.*

## **NEW NCCAN POLICY REQUIRES GRANTEES TO ARCHIVE DATA**

The National Center on Child Abuse and Neglect (NCCAN) has adopted a new policy which will require most new research grantees to archive their data with the National Data Archive on Child Abuse and Neglect upon completion of their projects. This new policy was announced in the March 15 Federal Register (Vol. 59, No. 50). The following language appeared under the Evaluation Criteria section of NCCAN's Request for Applications: "The extent to which the application includes plans to prepare data sets according to sound data processing and documentation practices to ensure the potential of these data sets for subsequent use by other researchers. The application provides for these data sets to be made available at the conclusion of the project to the National Data Archive on Child Abuse and Neglect."

NCCAN's new policy is consistent with the archiving policies of other federal agencies such as the National Science Foundation and the National Institute of Justice. The Archive had long advocated a policy that would require NCCAN funded researchers to archive their data within two years of the project's completion. It is the Archive's intention to ensure that Principal Investigators have adequate time to publish their findings before the data are made available to the public.

As a result of the new language in the RFP many applicants contacted the Archive for assistance in preparing their proposals. These applicants were provided with a copy of The Preparation of Data Sets for Analysis and Dissemination: Technical Guidelines for Machine-Readable Data. Some applicants chose to write a letter to the Archive indicating their willingness to follow NDACAN's Guidelines and make their data available to the Archive. In response, the Archive provided these applicants letters of support to include in their proposals.

The Archive staff will contact all new NCCAN research grantees early in their projects and provide them with information and technical assistance as their projects progress. The Archive's goal is to help NCCAN grantees produce high quality data and documentation that will be useful to both principal investigators and secondary users.

## **UPDATE ON THE CHILD MALTREATMENT RESEARCH LISTSERV**

Last fall the Archive established Child-Maltreatment- Research-L, a listerv for child maltreatment researchers. This list was established with the goal of facilitating information exchange and networking among researchers in the field of child abuse and neglect. Thus far the listserv has been a great success. There has been considerable discussion of research issues and research methodology in the last six months. Typical postings have included conference announcements, requests for advice and technical assistance, and summaries of findings from research projects. Currently, the listserv has approximately 250 subscribers.

To subscribe to Child-Maltreatment-Research-L, send an electronic mail message containing the text, subscribe CMR-L *your name* to listserv@cornell.edu. Substitute *your name* with your first and last name. For example, Bill Clinton's message would be as follows: subscribe CMR-L Bill Clinton. You can type your message in upper, lower, or mixed case. If you have trouble

subscribing to Child-Maltreatment-Research-L or want more information contact Patrick Collins (phone: 607- 255-0949, Email: ptc1@cornell.edu).

## **SOFTWARE FOR ANALYZING COMPLEX SURVEYS**

By Patrick Collins

The last issue of The Archive Updata (Volume 4, Number 1) contained an article by Ed Frongillo entitled: Understanding and Analyzing Complex Survey Data: The Case of NIS-2. That article introduced the basic methodology of complex surveys such as NIS-2, and summarized some of the unique analytic challenges that such studies present. One of these challenges involves accurately computing the standard errors associated with estimates and other statistics. In general, the standard errors will be larger in a complex survey sample than in a simple random sample. Standard statistical packages such as SAS and SPSS do not accurately estimate standard errors for complex designs because they assume independent observations drawn from infinite populations.

### Background

There are several statistical software packages which have been specifically designed to handle data from a wide variety of complex sample designs. These packages vary widely in terms of cost, availability for different operating systems, and functionality. Therefore, the package you choose will depend on your budget, the computing environment you use, and your specific analytic needs. Hence our purpose is not to advocate any specific package but to introduce the basic features of each package and point out unique strengths and limitations where they exist. For a review of mainframe packages, see Cohen, et al. (1988).

The packages employ a variety of methods for obtaining variances. These methods fall broadly into two classes: replication methods and linearization methods. Replication methods are further divided into balanced repeated replication (BRR) and jackknife repeated replication (JRR). The basic idea behind replication methods is to repeatedly select portions of the sample to calculate the estimate of interest, and then use the variability of these calculated quantities to estimate the variance of the full sample. The linearization methods rely on a mathematical procedure called Taylor Series for approximating the value of a function which would be difficult to calculate exactly. In practice, linearization methods can be used to obtain an approximation of the variance of a variety of statistics. For a more complete discussion of these methods see Lee, et al. (1989).

### SUDAAN

SUDAAN is probably the most popular of the packages and is designed to handle data from a wide variety of complex sample designs. It was developed by the Research Triangle Institute (RTI) with support from the U.S. Public Health Service. SUDAAN is written in the C programming language and has been ported to numerous operating systems. The current version (6.34) is available for MS/DOS, VAX/VMS, VAX/ULTRIX, SunOS, IBM/MVS, and IBM RS6000/AIX. The software is available as a stand-alone package for all operating systems and as SAS-callable procedures under VAX/VMS and IBM/MVS. On most platforms the stand-alone

version will read both raw data and SAS (6.03) datasets.

SUDAAN contains five descriptive statistics procedures and five statistical modeling procedures. In addition to linear and logistic models, SUDAAN has a procedure for fitting proportional hazards regression models for time-to-failure data and a general categorical data analysis procedure for log-linear modeling. Variance estimation for all statistics in SUDAAN is based on the Taylor series linearization method, in conjunction with a between-cluster within-stratum variance estimation formula.

Prices for SUDAAN vary by platform. Mainframe and workstation products are priced with annual license fees whereas the DOS product has a perpetual license. University customers receive a 50% discount on both mainframe and workstation products. All customers receive a 33% discount on mainframe and workstation products for having multiple licenses for the same product at the same site. These discounts do not apply to the DOS product which is priced at \$995. The fees for the stand-alone version (without discount) are \$2400 for mainframes and \$1200 for workstations for the first year; annual renewal fees are half of the first year fee. For more information or to purchase SUDAAN, contact Pamela Parham, SUDAAN Statistical Software Center, Research Triangle Institute, P.O. Box 12194, Research Triangle Park, NC 27709-2194, phone: 919-541-6602, fax: 919-541-5966.

#### Westat's Software

Westat, Inc., the contractor for the National Incidence Studies of Child Abuse and Neglect (i.e., NIS-1, NIS-2, and NIS-3), distributes several user-written SAS procedures that can be used to analyze these data as well as data from other complex surveys. These three procedures are available for the VAX/VMS and IBM/MVS operating systems. They are available for versions 5 and 6 of SAS, but the version 5 procedures are no longer being updated. SAS/Tools is required to install the version 6 procedures. Westat is in the beta-testing phase of developing a stand-alone product for Windows.

In contrast to the other packages discussed in this article Westat's software uses the replication approach to estimate the variance of sample statistics. The user is able to choose either balanced repeated replication or one of two forms of jackknife replication. One jackknife method is based on Tukey's procedure and one is for use with stratified samples such as NIS-2. It is important to remember that, when using the replication method, one must divide the sample into replicates and compute weights for each replicate. These 'replicate weights' must be used in addition to the full sample weights in the analysis. While the creation of replicates is an essential step, it should not be considered a major obstacle. The procedure is well-documented and can be accomplished in a reasonable amount of time by a statistician or an experienced analyst. Users of the NIS studies can obtain a set of replicate weights (created by Westat) from the Archive.

In its current release, Westat's software consists of three user-written SAS procedures: WESVAR, WESREG, and WESLOG. The WESVAR procedure is used to obtain survey estimates and their associated confidence intervals, and chi-square tests of independence for two-way tests of weighted frequency tables. Ordinary least-squares regression can be accomplished with the WESREG procedure. WESREG also computes test statistics for analysis of regression

models. The WESLOG procedure fits a logistic regression model to a binary dependent variable and computes maximum likelihood estimates of the parameters in the model using the Newton-Raphson iteration method.

The Westat software is currently distributed at no cost to interested users. The company may introduce a shipping and handling charge with the introduction of the Windows product. While the software is free, it is not considered freeware. Westat requests that users do not share the software with other users but rather direct all requests to Westat. For more information or to obtain Westat's software contact: Debby Vivari, Westat Inc., 1650 Research Boulevard, Rockville, MD 20850, Email: wesvar%westat@mcimail.com, phone: 301-251-1500, fax: 301-294-2034.

## PC CARP

PC CARP is a stand alone program for sample survey variance computation for the IBM/DOS operating environment. The package will run on any DOS machine with 500K of RAM and a math coprocessor. Written in the FORTRAN programming language, it was developed jointly by the Department of Statistics at Iowa State University and U.S. Census Bureau. The predecessor of PC CARP is SUPER CARP, an IBM mainframe program that has much of the same functionality. SUPER CARP is still available but is no longer being updated.

PC CARP uses the linearization approach to variance estimation. The program can be used to construct estimates and standard errors for totals, means, quantiles, ratios, the difference of ratios, and the entries in two-way tables. Weighted regression equations can also be estimated. Two additional supplements to the main program are available for logistic regression and post-stratification. The program is designed for multistage stratified samples and correction terms can be introduced at two stages.

One limitation of PC CARP is that it can only read raw datasets. It also has an unusual way of handling missing values. Hence users may have to spend some up-front time preparing their data for use with the system. PRE CARP, distributed with PC CARP, can be used for this purpose. Other drawbacks of PC CARP include a limit on the number of variables that can be read (this varies based on the type of analysis) and the absence of a batch mode. On the positive side the package is flexible, has a user-friendly menu-driven interface and is reasonably priced. The base package is priced at \$300; the supplemental modules (logistic regression and post stratification) are \$50 each. Licensed users are allowed to use duplicate copies of the package within the purchasing organization. For more information or to order PC CARP, contact Sandy Smith, Department of Statistics, Snedecor Hall, Ames, Iowa 50011-1210, phone: 515-294-5242, fax: 515-294-2456.

## OSIRIS IV

OSIRIS IV is a statistical analysis and data management system for IBM mainframe computers. Currently it runs under the VM/CMS, OS, and MVS operating systems. The package is distributed by the Institute for Social Research at the University of Michigan. Unlike the other packages discussed in this article, OSIRIS IV is a complete statistical package which also has

special procedures for analyzing data from complex surveys. (Note that MicroOsiris, the DOS based version of OSIRIS, does not support these procedures.) OSIRIS IV is a highly flexible system; It can read SPSS and SAS datasets as well as raw data.

The package contains five procedures designed for survey error estimation: PSALMS, PSRATIO, PSTABLE, PSTOTAL, and REPERR. Whereas REPERR uses repeated replication techniques, PSALMS, PSRATIO, PSTABLE, and PSTOTAL use linearization approximation. All of the procedures allow the user to choose from among several variance estimation techniques. A wide variety of statistics can be computed with these procedures including means, subpopulation totals, ratios, differences of ratios, correlations, partial correlations, and regression coefficients.

OSIRIS IV is distributed by the Institute for Social Research on a non-profit basis. Different licenses are available for single CPUs, multiple CPUs, and time sharing systems. Substantial discounts are offered to universities; Members of the Inter-University Consortium for Political and Social Research receive an additional discount. The university price for a single CPU (multi-user) is \$1,250 for the first year with a \$998 renewal fee. For more information or to lease OSIRIS IV, contact Gweneeth Conklin, Institute for Social Research, P.O. Box 1248, University of Michigan, Ann Arbor, MI 48106-1248, phone: 313-764-4417, fax: 313-764- 8383.

In summary, there are numerous packages available for the analysis of complex survey data. SUDAAN is the most widely used and is available for a wide variety of platforms. Westat's software has the advantage of being free of cost and with the addition of a stand-alone Windows product will be very attractive to PC users. PC CARP will appeal to DOS users who want a functional low cost solution. OSIRIS IV is a powerful statistical package, but is currently only available to IBM mainframe users. When trying to choose a package try to get as much information as possible. All of the companies mentioned in this article will provide free information upon request.

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Lee, ES, Forthofer, RN, Lorimor RJ (1989) *Analyzing Complex Survey Data*. Newbury Park, CA: Sage University Paper #71. Patrick Collins is the Project Director of the National Data Archive on Child Abuse and Neglect at Cornell University. Francoise Vermeylen, of the Office of Computing and Statistical Consulting at Cornell University, contributed to an early draft of this article.