Cohen, Jacob

Jacob Cohen's contributions to statistical analysis in the behavioral sciences reflected his lifelong perspective as a data-analyst, insisting that the role of statistics was to help scientists answer the questions motivating any given study, and that there was no substitute for human judgment in this process [3]. Cohen's best-known contributions began when he called attention to the poor statistical **power** of much psychological research [1] and developed readily applied methods of estimating such power in planned research [2, 4]. Such estimates were necessarily based on the probability of rejecting the null hypothesis with an acceptably low level of statistical significance (*alpha level*). Ironically, among his last contributions to methodological developments in the field was a rejection of a statistical criterion as the central basis for interpreting study findings.

Cohen entered City College of New York (CCNY) at the age of 15, following graduation from Townsend Harris High School in New York. After two years of dismal performance (except in ping pong), he worked in war-related occupations and then enlisted in the Army Intelligence Service in time to participate in the final year of World War II in France. Upon returning to the US, he completed his undergraduate education at CCNY (1947) and his doctoral degree in clinical psychology at New York University (1950), writing a dissertation based on **factor analyses** of the Wechsler IQ test in samples of patients and comparison groups. In the beginning, during his studies, Cohen carried out research in the Veteran's Administration and continued thereafter as staff psychologist and director of research while also teaching on a part-time basis. During those years, he developed Cohen's *kappa* statistic (*see* **Rater Agreement–Kappa**) [1], a measure of chance-corrected agreement later further elaborated to take partial agreement into account. In 1959, he was appointed to full-time faculty status in the psychology department at New York University, where he remained as head of quantitative psychology until his retirement in 1993. Throughout these years and until his death, Cohen consulted on research design and data analysis at nearly every behavioral research and university site in the city, especially at New York State Psychiatric Institute. He was president of the *Society for Multivariate Experimental Psychology* in 1969 and honored with a lifetime achievement award by Division 7 of the *American Psychological Association* in 1997.

Cohen's first widely influential work followed an analysis of the *statistical power* of studies published in the 1960 *Journal of Abnormal and Social Psychology* [2]. His development of rough norms for small, medium, and large **effect sizes** and easily used methods for estimating statistical power for a planned study made his book *Statistical Power Analysis for the Behavioral Sciences* [4] the classic in its field, with widely used subsequent editions and eventually computer programs. His second major contribution to the field was the adoption of *multiple regression analysis* as *a general data analytic system* [3, 7]. In these books and articles, Cohen employed the accessible language and conversational style that also made his work, particularly his 1990 'Things I have learned (so far)' and 1994 'The earth is round (p < .05)', so widely appreciated [5, 6]. His name also appeared in the top rung of citation indices in the behavioral sciences over an extended period.

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