

**Psychologist Supply, Managed Care, & the Effects on Income:  
Fault Lines Beneath California Psychologists**

David Pingitore<sup>1</sup>, Richard Scheffler<sup>2</sup>, Tetine Sentell<sup>3</sup>,  
Michael Haley<sup>4</sup>, and Douglas Schwalm<sup>5</sup>

**Submission Date: July 19, 2001**

- 1 National Institute of Mental Health Research Fellow, School of Public Health, University of California, Berkeley
- 2 Professor, School of Public Health & Goldman School of Public Policy, University of California, Berkeley
- 3 Graduate Program in Health Services and Policy Analysis, School of Public Health, University of California, Berkeley
- 4 Executive Director, International Communication Association, Austin, Texas  
Formerly, Executive Director, California Psychological Association
- 5 Graduate Program in Economics, University of California, Berkeley

**Acknowledgement:** The authors wish to thank the California Psychological Association members who participated in this study and Jeff Schultz of the CPA staff who worked on this project. Appreciation is also extended to Phil Spector, Department of Statistics, University of California, Berkeley and to Tom Piazza and Yuteh Cheng of the Survey Research Center, University of California, Berkeley for their assistance. This study was supported by a grant from the National Institute of Mental Health (Mental Health Finance and Service Delivery - MH 18828-13) (Dr. Pingitore).

**Address for Correspondence:** Questions and comments can be addressed to David Pingitore, Ph.D., NIMH Fellow, 140 Warren Hall, School of Public Health, University of California, Berkeley, Berkeley, CA 94702. (510) 642-5659. The Email address is: [pingitor@uclink4.berkeley.edu](mailto:pingitor@uclink4.berkeley.edu)

### **Abstract**

Data from the 2000 California Survey of Psychological Practice were used to measure psychologists' income variation associated with demographic characteristics, managed care participation rate, and mental health workforce supply concentrations. A ten-percent increase in the supply of psychologists in a psychologists' market of practice resulted in a \$1,749 reduction in income compared to a \$1,330 income reduction due to a ten-percent increase in managed care participation. The authors discuss how psychologists' income and other aspects of practice are shaped by market dynamics, trends in the psychologist workforce, and public policy.

Income represents one pillar that supports a psychologist's work. Such support now lies precariously on an economic and organizational terrain that has been transformed by changes in the health care delivery system. These changes include managed care, trends in public and private mental health financing, and the steady growth in the supply of the nation's mental health workforce, including the supply of psychologists. This study uses data from the 2000 California Survey of Professional Psychology to determine whether variation in psychologists' income is associated with those changes. The approach taken in this study represents one of the first efforts to comprehensively measure how income variation among psychologists is associated with practitioner demographics, managed care, and mental health workforce supply dynamics.

### Findings from Previous Surveys of Psychologists

Income differences based on psychologists' demographic characteristics are prevalent within the profession. In the 1999 APA Salary Survey, differences in mean and median income were reported among clinical psychologists based on gender, race/ethnicity, and years of experience (Williams, Wicherski, & Kohout, 2000). For example, mean and median incomes were higher among men than among women, and income increased with years of clinical experience.

Data from APA Salary surveys conducted through the 1990's also reported negative trends in psychologists' income, attributed to managed care and other changes in the mental health delivery system. The number of psychologists who reported salary declines increased by fourteen percent between 1995 and 1997. Reported declines in salaries averaged nearly twenty percent in 1997. The 1999 APA Salary Survey found that a majority of psychologists across all experience categories reported declines in income from the previous year due to managed care (Williams et al., 2000). In addition, the magnitude of salary decrease was related to years of experience, with a greater proportion of psychologists with ten or more years experience reporting decreased net income compared to younger colleagues (Williams, Kohout, & Wicherski, 1999). Thus, while older, more experienced psychologists earn more income than their younger, and less experienced colleagues, the size of that difference is narrowing and it appears to be the result of changes in the health care system.

Other surveys conducted among psychologists report contrary evidence regarding the impact of managed care and other mental health reforms on income. In a study conducted in New Jersey, psychologists with no managed care participation reported the lowest net income, while psychologists with managed care participation of no greater than 29 percent of patients reported the highest net income (Rothbaum, Bernstein, Haller, Phelps, & Kohout, 1998). A study conducted among Florida psychologists reported that income increased among practitioners as managed care participation increased (Gold & Shapiro, 1995). Taken together, these studies suggest that managed care's effect on psychologists' income may not be uniform. Particular demographic, practice pattern, and market characteristics may be significant factors in determining how income is effected by managed care.

### The Impact of Managed Care on Income

Managed care arrangements affect psychologists' income through the use of contractual arrangements (i.e., risk contracts between employers and health plans), benefits designs (e.g., number of authorized treatment episodes, fees, and co-payments), and other mechanisms (i.e., provider panels, use of gatekeepers) that shape the demand for and utilization of mental health services (Goldman, McCulloch, & Sturm, 1998; Sturm, Meredith, & Wells, 1996). For example, significant variation in fees offered by managed care companies to psychologists throughout the country have been reported (Psychotherapy Finances, 1997). Managed care fee structures take on added significance for California psychologists since a majority of California residents with private insurance have their services delivered by one form of managed care, health maintenance organizations (HMOs) (Cattaneo & Stroud, 2000). HMOs also have their own unique set of dollar limits and benefits restriction on mental health services in comparison to other types of managed care organizations (Jensen, Rost, & Burton, 1998). Thus, California psychologists may experience alterations in income associated with the size of HMO enrollment in their area of practice.

Indirect evidence of the organizational factors that shape psychologists' income has been found in the Medical Outcomes Study where psychologists' depressed patients reported fewer chronic conditions and higher levels of functionality over time than patients treated by psychiatrists or general medical providers (Wells et al., 1989). In prepaid health plans, this type

of patient profile may lead to fewer authorized visits to psychologists and hence less income. Information on benefits designs from behavioral health “carve out” firms’ provides indirect evidence of managed care’s effect on income through reported declines in treatment sessions authorized per member [Goldman, 1998 #57; (HayGroup, 1998); Scheffler, 1998 #54; Wells, 1989 #63]. A case study of HMOs found evidence of reductions in psychologist staffing patterns among one large HMO over a three year period (Ivey, Scheffler, & Zazzali, 1998). National data from employers and HMO organizations, along with case studies from individual managed care firms and the American Psychological Association’s CAPP survey, have also documented substantial changes and reductions in mental health benefits designs that affect income (Buck, Teich, Umland, & Stein, 1999; Buck & Umland, 1997; Goldman et al., 1998; Jensen et al., 1998; Phelps, Eisman, & Kohout, 1998).

#### Findings from Mental Health Services Research

There is evidence to suggest that psychologists’ income may be influenced by factors other than practitioner demographics and managed care (Norcross & Wogan, 1983; Taube, Burns, & Kesler, 1984). First, exclusive attention to the impact of managed care on income obscures the fact that a number of other payment sources and delivery systems comprise the nation’s mental health system. Beginning in the 1990’s, financing for mental health services nationwide shifted from the private to the public sector with increases in the proportion of funds to certain provider types (e.g., publicly funded alcohol treatment programs). The average annual growth rate among public programs has also been greater compared to growth in private programs (McKusick et al., 1998). There has also been a marked decline in out of pocket spending by patients as more persons obtained health insurance with mental health benefits. Sizeable portions of payments for mental health and substance abuse services are also made to the general medical sector (McKusick et al., 1998), including community hospitals and primary care physicians. These changes in public mental health policies and financing are independent of the private insurance system’s use of managed care. The impact of these changes on practitioners’ income is infrequently examined by psychologists.

Second, professional practice is a business enterprise, in which productivity and income respond to competition from psychologists or other mental health providers. In particular,

psychologists may be faced with significant business competition from within their own ranks. The nation's supply of psychologists has steadily expanded in the past decade, both in total growth relative to previous years and in comparison to various other provider groups, such as psychiatrists (Ivey et al., 1998). Women comprise a majority of students who enter clinical training programs, and increasingly dominate the supply of new practitioners (Pion et al., 1996). Psychologist supply dynamics may particularly affect women who typically earn less income than men (Williams et al., 2000). An examination of the income differences between male and female psychologists, and the factors associated with that difference, are reviewed in a companion piece (Sentell, Pingitore, Scheffler, & Schwalm, 2000).

How psychologists can prevent clinical marginalization and income erosion as they adapt to a changing mental health market and psychologist work force has been examined (O'Neil, 2000); Robiner, 1991 #65]. The recent discussion on the supply and demand of psychologists included labor force supply projections that suggest a crisis in numbers now exists with psychologist supply vastly outweighing estimated need (Robiner & Crew, 2000). Petersen and Rodolfo (2000), in contrast, offered a more optimistic assessment of the supply-demand issue, based, in part, on hypothetical scenarios about the explicit demand for psychologists' services nationwide. Such evidence and commentary underscores the need for empirical data on how income, a vital dimension of practice, is affected by the psychologists' workforce. To date, no empirical study has examined the effect of provider supply on psychologists' income.

Third, psychologists are also faced with competitive dynamics and the potential for collaboration with other mental health professionals. California psychologists reported treating fewer patients per week, and reported earning less yearly income in comparison to California psychiatrists (Pingitore, Scheffler, Sentell, & West, 2001b). This information suggests that psychologists may be at a competitive disadvantage vis a vis psychiatrists. Psychologists' interest in obtaining psychotropic medication privileges has also put them at odds with psychiatrists and other physicians in potentially shifting a portion of services to psychologists. Given the large proportion of mental health services delivered by primary care physicians, various collaborative models between these providers and psychologists have been suggested. As yet no reliable data exists on how the supply of these physicians impacts the demand for psychologists services and subsequent income.

Finally, the overall need and demand for mental health services in a community helps determine participation in treatment with a psychologist and hence practitioner income. Need and demand, in turn, are affected by particular social and psychological characteristics of the person seeking services, the availability of those services, and the financial and organizational factors that shape the accessibility of services (Cleary, 1989). Previous research has suggested that in comparison to psychiatrists, the patients of psychologists are more likely to be college educated, employed, and under 55 years of age (Norcross & Wogan, 1983; Taube et al., 1984). Thus, particular subpopulations from the general community are more likely than others to seek services from a psychologist, and this pattern of access may effect income.

This study marks the first attempt to determine if variation in psychologists' income is associated with practitioner demographic characteristics, mental health workforce supply, and other relevant market characteristics. The available evidence suggests that these factors may each influence psychologists' income. The following hypotheses were employed in this study: 1) Net income would be greater for more experienced psychologists than for less experienced psychologists; 2) Net income would be greater for male psychologists than for female psychologists; 3) Net income would decrease as the percentage of psychologists' patients covered under managed care increased; 4) Net income would decrease as the supply of clinical psychologists in the psychologist's area of practice increased; 5) Net income would decrease as the supply of psychiatrists in the psychologist's area of practice increased; and 6) Net income would decrease as the percentage of persons enrolled under an HMO plan in the psychologist's area of practice increased.

#### 2000 California Survey of Psychological Practice: Factors Related to Income

This study is based on a subsample of the 2000 California Survey of Psychological Practice (Pingitore, Scheffler, Haley, Sentell, & Schwalm, 2001a). The subsample (N=271) represents sixty nine percent of the total number of practicing clinicians who participated in the survey. Data was derived from respondents who reported being in active clinical practice. Active clinical practice was defined according to the following criteria: 1) providing at least one patient visit per week; and 2) working full-time, defined as at least thirty five hours per week. Full-time employment criteria correspond to that used by the APA in its annual survey of

psychologists' salaries, thus allowing for comparisons (Williams et al., 2000). The design, sampling strategy, and survey methodology of the California Survey of Psychological Practice are described elsewhere (Pingitore et al., 2001a). The study subsample was weight adjusted for the oversampling of younger psychologists using the formula employed in the companion study.

This study employed, in part, a human capital model for understanding variation in income. The human capital model is based on Becker's (1975) formulation of income growth as a function of investment in education, training, and subsequent experience across the life cycle (Becker, 1975). Thus, persons with considerable training and experience in a job or profession are likely to be productive, marketable, and to derive greater monetary benefits from their work. For the present study, experience was based on the date of California licensure as a psychologist. Thus, variation in income could be analyzed according to psychologists' years of clinical experience in California independent of age.<sup>1</sup>

Data on psychologists' demographic characteristics, reported income, and payment sources were obtained from CPA members who completed the 2000 California Survey of Psychological Practice. Four categorical or "dummy variables" measured psychologists' years of clinical experience, and were defined as follows: 1) less than five years of clinical experience, 2) six to ten years of experience, 3) eleven to twenty years of clinical experience, and 4) greater than twenty years of experience.

Data on the supply of psychologists was obtained from the State of California, Department of Consumer Affairs, which yearly tracks the number of licensed mental health professionals (Department of Consumer Affairs, 2000).<sup>2</sup> Data on the number of licensed

---

<sup>1</sup> Based on the data available for this study, psychologists who relocated to California after licensure would not have the years of experience prior to relocation included in the experience variable. Hence, the results observed in this study may under estimate the association between income and clinical experience. Data were not available on the years of training for each psychologist, so that element of the human capital model was not employed.

<sup>2</sup> Data was purchased and obtained for this study in an electronic file format from the Department of Consumer Affairs (DCA) (Department of Consumer Affairs, 2000). The DCA provides administrative oversight for all boards that license health professionals in California, including psychologists licensed by the Board of Psychology (BOP). The DCA updates the number of valid licensed psychologists on a continuous, daily basis. The data obtained and used in this study referred to those psychologists who held a current and valid license, who resided in California, and who were eligible to practice psychology in 1999. It excluded psychologists with licenses, but who were not practicing, who held a license but resided outside of California, or whose license was delinquent or inactive (Board of Psychology, 2000). Tracking changes in the number of psychologists over a ten year time period, for example, is limited by the fact that at any time in the present the DCA has on file only those psychologists who held a license in 1990. The DCA listed 5340 psychologists as holding a license in 1990 defined by the criteria listed above. However, the real number of practicing psychologists in 1990 may have been greater as persons became deceased, moved out of state, left the profession, etc. The DCA lists 11,023 psychologists holding a valid license in 1999,

psychiatrists and primary care physicians in California was obtained from the Area Resources File for 1996, which represented the most recent data available. Each provider figure was adjusted to represent the number of providers per 100,000 population (Bureau of Health Professions: Office of Research and Planning, 1998). Data on the percentage of California residents enrolled in prepaid health plans (e.g. health maintenance organization - HMO) of a Commercial, Medicare, or Medicaid type for 2000 was obtained from an industry consulting firm (Cattaneo & Stroud, 2000). To account for regional variation in psychologists' practice, observations were clustered by primary sampling units, defined as one of ten Metropolitan Statistical areas (MSAs) within California.<sup>3</sup>

This study measured three different forms of income variation among psychologists. First, mean income figures for psychologists by demographic characteristics were tabulated, and significance tests were used to evaluate the hypotheses that income differences were evident in this sample. A T-test was used to compare income differences between psychologists based on gender. Multiple comparison tests with Bonferroni "power" adjustments were employed to compare income differences between psychologists based on age group membership, years of clinical experience, and race/ethnicity (Pedhazur & Schmelkin, 1991).

Second, t-tests were used to determine if significant incomes differences among psychologists were associated with different supply concentrations of psychologists, psychiatrists, primary care physicians, and HMO enrollment rates in the psychologists' county of practice. The presence of significant income differences based on different supply concentrations would provide evidence for the effect of mental health workforce dynamics on psychologists' income.<sup>4</sup>

---

defined by the criteria listed above. This latter figure potentially represents an 88 % increase in the number of psychologists in California since 1990.

<sup>3</sup> A metropolitan statistical area consists of a core area (e.g., city or county) containing a large population nucleus, together with adjacent communities having a high degree of economic and social integration with that core (U.S. Department of Commerce: U.S. Census Bureau, 2000). The clustering procedure used in this study accounts for the correlation among observations that share similar characteristics. These characteristics are the market "norms" that exist in a respective MSA, and which impact practice in that area and create potential income differences between psychologists practicing in other markets. Ten MSAs were constructed for this study. A sizeable literature employs MSAs to measure differences in practice characteristics among health and mental health professionals (Hermann, Dorwat, Hoover, & Brody, 1995; Johnson et al., 1996; Krakauer et al., 1995).

<sup>4</sup> Comparisons were made for psychologists' practicing in counties with provider supply concentrations at the 25<sup>th</sup> percentile or less and 75<sup>th</sup> percentile or greater, and county HMO enrollment rates at the same concentration levels. The number of providers per 100,000 by concentration level were as follows: Psychologists (25<sup>th</sup> % = 32.3; 75<sup>th</sup> % = 42.4); Psychiatrists: (25<sup>th</sup> % = 13.8; 75<sup>th</sup> % = 17.8); Primary Care Physicians: (25<sup>th</sup> % = 80.4; 75<sup>th</sup> % = 89.3); HMO participation rate: (25<sup>th</sup> % = 43.8; 75<sup>th</sup> % = 55.6).

Third, a linear regression model was used to determine if variation in psychologists' income was associated with a set of variables that included provider demographics, payment sources, and mental health workforce variables. The following independent variables were used: 1) psychologists' gender; 2) psychologists' years of clinical experience; 3) percentage of weekly patient services paid by one of seven payment sources; 4) the supply of psychologists and psychiatrists per 100,000 population in the respondent's practice market; 5) market factors, measured as the MSA in which the psychologist practiced, and 6) the percentage of persons per county enrolled in an HMO. The dependent variable was the log of net reported income for 1999.<sup>5</sup>

### Factors Affecting Psychologists Income

#### *Demographic and Practice Characteristics*

Demographic characteristics of full-time practicing psychologists are presented in Table 1. Table 2 presents data on respondents' payment sources, health plan types, and fee arrangements. Among payment sources, psychologists reported that the most prevalent form was patient self-payment (27.65%). Private insurance delivered under managed care was the next highest form of payment (26.88%). Psychologists reported that slightly over twenty percent (21.34%) of patients received services not delivered under any health plan (e.g., no insurance). Among health plans, full service HMOs accounted for the largest percentage of patients (15.44%).

---

<sup>5</sup> Logarithmic transformations of the dependent variable was used because preliminary analyses revealed heteroscedasticity, such that variance due to error (e.g., residuals) was not constant for all levels of the dependent variable (e.g., variance estimates increased as the values of the dependent variables increased). Log transformation of the dependent variable improved the fit of the regression model and reduced the likelihood of obtaining a biased statistically significant result (e.g., Type I error) which may not have been present if the variance among the independent variable was more uniform. In the regression analysis the comparison groups were male psychologists, psychologists with less than five years clinical experience, and the percentage of a psychologists' payments derived from private or fee for service insurance. Preliminary analyses indicated that a number of variables did not improve the model, and were dropped from the final analysis. These variables were nonwhite psychologists (e.g., African-American, Asian-American, Hispanic, or Other race/ethnicity), practice settings, health plan variables, the number of primary care physicians per 100,000 population, and the number of Caucasian and African-American persons with four or more years of college education in the psychologists' count of practice.

### *Demographic Characteristics and Income*

Table 3 presents data on psychologists' income by demographic characteristics. Among all full-time psychologists, net income for 1999 was \$83,326. Mean net income for men (\$91,862) was significantly greater than that for women (\$71,831) ( $t=3.54$ ,  $p<.001$ ). Some income differences were observed across years of clinical experience after adjusting the significance level to account for the number of comparisons employed in the analysis. Net income for psychologists with more than twenty years of experience was greater than for psychologists with five to ten years experience ( $p < .05$ ), and was greater than for psychologists with less than five years experience ( $p < .001$ ). Net income for psychologists with five to ten years experience was greater than for psychologists with less than five years experience ( $p < .05$ ). No other comparisons were statistically significant.

Income differences were observed across age groups after adjusting the significance level to account for the number of comparisons employed in the analysis. Net reported income for psychologists aged 55 years and older was significantly greater than for psychologists 39 years and younger ( $p < .01$ ). Net income for psychologists aged 40-54 years was significantly greater than for psychologists 39 years and younger ( $p<.05$ ). The only observed income difference that was not significant was for psychologists aged 40 to 54 in comparison to psychologists 39 years or younger. No significant income differences by race and ethnicity were found, after adjusting the significance level to account for the number of comparisons employed in the analysis. However, some caution should be taken in interpreting these results given the small number of psychologists among each of the categories of non-white psychologists.

### *Market Characteristics and Income*

There was no statistically significant difference in the income of psychologists practicing in counties with psychologist supply concentrations per 100,000 at the 25<sup>th</sup> (\$79,502) and 75<sup>th</sup> percentiles (\$80,140) ( $t=.68$ ,  $p > .05$ ). In contrast, psychologists practicing in counties with a high concentration of psychiatrists reported more net income (\$81,713) than colleagues working in counties with a low concentration of psychiatrists (\$77,141) ( $t = 3.14$ ,  $p < .01$ ). Psychologists working in counties with a high concentration of primary care physicians reported less net

income (\$76,431) than colleagues working in counties with a low concentration of primary care physicians (\$83,950) ( $t = -7.52, p < .001$ ). Psychologists working in counties with a high concentration of persons enrolled in HMOs (\$86,970), reported earning more net income than psychologists working in counties with a low concentration of persons enrolled in HMOs (\$70,685) ( $t = 21.14, p < .001$ ).

#### *Demographic, Practice, and Market Characteristics and Income*

Results of the regression on log income are presented in Table 5.<sup>6</sup> An increase in net income was associated with an increase in the number of weekly patient visits. A ten-percent increase in weekly patient visits (e.g., 2.5 more visits per week) was associated with an increase in income of \$1,645. An increase in psychologists' income was also associated with years of experience. The comparison group was psychologists with five years or less experience. For psychologists with twenty or more years of clinical experience, and using mean years of experience in that category (26.9 years) as a benchmark, a ten-percent increase in experience was associated with \$17,144 more net income in 1999. However, the result was slightly below conventional statistical significance. For psychologists with eleven to twenty years experience, and using mean years of experience in that category (15.4 years) as a benchmark, a ten-percent increase in experience was associated with \$12,699 more net income in 1999. These differences were significant and independent of other provider demographics, payment sources, supply of psychologists, psychiatrists, and other variables. There was no difference in income for psychologists with between 5 and 10 years experience and the comparison group.

An increase in net income was also associated with the number of psychiatrists per 100,000 population. A ten-percent increase in the number of psychiatrists in a psychologists' market of practice (e.g., 2 more psychiatrists per 100,000 population) was associated with an increase in psychologist's income of \$1,949. Once again, this association was significant after controlling for all other factors in the model.

Significant reductions in psychologists' net income were also observed. Women, on average, reported earning \$15,065 less net income than men in 1999 after controlling for

experience, payment source, supply of psychiatrists and psychologists, and the overall HMO enrollment rate. A decrease in net income was also associated with increases in the number of other psychologists per 100,000 population. A ten-percent increase in the number of psychologists practicing in the same metropolitan statistical area (e.g., 5 more psychologists per 100,000 population) was associated with a \$1,749 decrease in reported income. This result is significant after controlling for all other factors in the model.

A decrease in net income was also associated with psychologists' participation in payment sources. In comparison to receiving payment from traditional fee for service financing, a ten-percent increase in the percentage of patients covered under managed care (e.g., approximately three percent more patients) was associated with a \$1,330 reduction in net reported income. This result was significant after controlling for provider demographics, other payment sources, supply of psychiatrists and psychologists, and overall HMO enrollment rate.

### **Discussion and Recommendations**

This is the first study to analyze psychologists' income variation due to the effect of demographic characteristics, managed care, and mental health workforce dynamics. While other studies using survey data have charted trends in psychologists' income, or provided indirect evidence of managed care's effect on income, this study offers a benchmark against which to evaluate the market forces that shape psychologists' income in the future. A focus on income also serves as an important means of evaluating the overall stability of professional practice in the area of referrals and treatments, workforce projections, competition with other providers, and reliance on payment sources. These results estimate in average dollar amounts how the shifting forces of the American health care system have affected psychologists' income.

Given the experience and skill of psychologists, we believe it may be presumptuous of us to offer any more than a few "tips" or "advice" on how psychologists can use these results in their practice. Furthermore, these results appear to suggest that market and supply factors exert an effect on income independent of characteristics that psychologists can control, such as years of clinical experience. It remains for psychologists in positions of authority and leadership

---

<sup>6</sup> Coefficients are recalculated back into dollar amounts using a formula that takes a ten percent increase in the mean of the independent variable multiplied by the regression coefficient. This value is then multiplied by the mean

within professional associations and graduate education to consider how the information in this study can benefit psychologists in practice. Based on practicing psychologists' caseload, treatment, and setting patterns presented in the companion study (Pingitore et al., 2001a), doctoral programs should consider even more emphasis on training students in areas that are underrepresented, such as the treatment of children, the elderly, or substance abusers. In doing so, psychologists in doctoral programs would be avoiding the pattern of one-directional communication that occurs between clinicians and researchers, whereby researchers fail to integrate the work of practitioners into their own endeavors (Beutler, Williams, Wakefield, & Entwistle, 1996). The supply dynamics and other market realities faced by practitioners need to be incorporated into the training agendas of doctoral programs nationwide.

#### *Effect of Psychologists' Supply on Income*

The results provide evidence that individual practitioner income is adversely affected by greater supply in the psychology workforce. While derived from a cross-sectional study, the evidence suggests that the expansion of the psychologist workforce in California has reached the point of "market saturation" with adverse effects on income. This evidence goes beyond hypothetical workforce scenarios regarding the oversupply of psychologists under managed care arrangements (Robiner & Crew, 2000). It is based on empirical data obtained from licensed psychologists who are reasonably representative of both practicing California psychologists and practicing psychologists who are members of the APA. Furthermore, the results suggest that psychologist supply may create competitive dynamics among practitioners with greater reductions in individual incomes than those due to managed care.

The dynamics of market saturation in California, such that there are simply too many psychologists in a given market or per 100,000 population, may represent a principal reason for the reduction in psychologists' income. Robiner and Crew's (2000) discussion of the future of the psychology workforce suggested that the "rosiest projection" for a reasonable supply of psychologists was between 35-40 per 100,000 population. The data used in this study indicates that their figure has been surpassed in 2000, with a mean of 42.1 psychologists per 100,000. It is important to note that the saturation effect on income reported in this study is applicable only to

---

reported income to arrive at the average increase or decrease in income attributed to the independent variable.

those psychologists working full-time and who reported income. The results may be different, and more extensive, for women psychologists (Sentell, Pingitore, Scheffler, and Schwalm, 2000), those working part-time, or psychologists just beginning their careers.<sup>7</sup>

The income figures reported by these California psychologists may simply reflect the effect of adverse local and regional market characteristics, in contrast to the more favorable market characteristics reportedly experienced by other psychologists (Peterson & Rodolfa, 2000). However, a number of features of this study, and of California in general, suggest otherwise.

First, this sample of psychologists is representative of both APA practitioner members nationwide and California APA practitioner members.<sup>8</sup> Second, census data indicates that Californians do not possess significantly more or less income or college education than persons in other states, factors that have been shown to influence utilization of mental health services (Cleary, 1989). Thus, California psychologists as a group do not practice in an environment with unusually limited or excessive demand for their services.

Third, HMO penetration in California counties appears to be greater than in other states, with four California counties ranked in the top ten (Digest of Managed Care, 1999). This dynamic may differentially affect the income of California psychologists in comparison to other psychologists through a number of mechanisms, such as fees and referrals. Yet a high HMO enrollment rate at the county level was associated with a greater mean income for psychologists. How can that finding be understood given the evidence that HMOs utilize benefits designs that may limit the use of psychologists' services, and hence reduce income? One answer may be that major employers and hospitals have introduced HMOs precisely in those areas where there were

---

<sup>7</sup> To control for the effect of practice size on the study sample we reanalyzed income variation among psychologists by redefining the sample as comprised of only those full-time psychologists whose number of patients visits (e.g., 10 or more) placed them in the upper three quartiles of the sample. That is, psychologists with a practice size at the 25<sup>th</sup> percentile rank or greater. Thus, we excluded those psychologists with extremely small practices. The regression results once again confirmed the pattern of greater negative effect on income attributed to psychologists' supply versus managed care participation.

<sup>8</sup> This sample is similar in age, gender, race, and ethnicity to all APA psychologists who reported characteristics in 1998 (American Psychological Association, 1999b). It is also similar in age, race, and ethnicity to all California APA practitioner members (American Psychological Association, 1999a). There was a greater proportion of women in this sample who did not report income than men, which may influence the results. Yet women psychologists report earning less income than men, so these results may actually underestimate the effects on income of the various demographic and market forces examined in this study. This sample may also possess other individual and practice characteristics, such as level of clinical skill, theoretical orientation(s), or prominence in the community as clinicians, that may result in income patterns different from other samples of psychologists.

historically high utilization rates of and costs for health services, including mental health services. Psychologists in those areas may have created thriving practices prior to the introduction of HMOs, including a large percentage of self-pay patients. Thus, while a majority of a county's residents with insurance may be under HMO plans, psychologists in those counties have established practice patterns that sustain high income.

When other factors associated with income were controlled for, the regression results suggested that increased HMO participation in a psychologists' market did not reduce income. Results from a study using a community sample found that individuals in areas with greater HMO presence have better overall access to medical care, which in turn improves access to mental health care (Gresenz, Stockdale, & Wells, 2000).

One characteristic of the California health care market that may constrain the generalizability of these results is that a larger percentage of Californians are uninsured in comparison to the nation. This feature may adversely affect utilization of psychologist's services and their income to a greater degree than for psychologists in other states (Schauffler, McMenamin, & Zawacki, 2000).

#### *Effect of Psychologists' Supply on Income: Fact or Artifact?*

In the univariate analysis, there appeared to be no difference in mean income for psychologists practicing in markets with a low supply of psychologists versus psychologists practicing in markets with a high supply of psychologists. However, a significant income difference due to psychologists' supply was observed in the multivariate analyses when the effect of factors such as gender, experience, and payment source on psychologists' income were controlled for, and the unique association between income and psychologists' supply was assessed.

Second, a post hoc analysis of psychologists' income across all deciles revealed an income pattern based on the supply of psychologists not evident in the univariate analysis. This analysis found that mean incomes for psychologists at the 40<sup>th</sup> and 50<sup>th</sup> percentile ranks were significantly larger than incomes for psychologists at the 10<sup>th</sup> and 20<sup>th</sup> or 80<sup>th</sup> and 90<sup>th</sup> percentile ranks. Particular market dynamics that influence psychologists' service delivery may be

---

operating to account for these differences. For example, clinicians may earn less income while practicing in markets with a low concentration of other psychologists because those markets include persons with lower income, less education, or who lack health insurance. Those factors may also influence psychologists' decision about practice location. In contrast, psychologists may earn less income while practicing in markets with a high concentration of other psychologists because those markets may include persons with predisposing factors such as higher income and more education, or persons with enabling factors such as health insurance, each of which allow them to be more selective in their choice of mental health provider (Leaf et al., 1988).

At minimum, the results concerning income reductions associated with psychologist supply suggest that the education of doctoral psychologists does not exist in an economic vacuum separate from its effect on practitioners already in the market. While changes in doctoral education and training have been recommended as a means to improve the competitive advantage of recent graduates, such changes do little to assist experienced psychologists who have been in professional practice. Nonetheless, psychologists' efforts to expand their practice and income could benefit from published case reports that outline how their colleagues in practice developed new markets for their services. The APA or other associations should also consider surveying practicing psychologists on such issues as collaboration and referral patterns with physicians and other mental health professionals.

#### *Effect of Psychiatrists' Supply on Income*

This study also found that net income for psychologists practicing in markets with a high concentration of psychiatrists was significantly larger than for psychologists practicing in counties with a low concentration of psychiatrists. In addition, even when controlling for demographic and market factors that affect income (e.g., experience level or HMO participation rate), psychologists' income increased with a corresponding increase in the supply of psychiatrists. A similar finding has been found among a national sample of psychiatrists regarding the positive effect on net income from the increased supply of psychologists (Scheffler, Pincus, Pingitore, & Schwalm, 2000). These are particularly interesting findings given that one might assume that competitive economic pressures would be greater than

collaborative economic advantages between these two groups. It is possible that psychiatrists' fees are prohibitive to some patients, and these patients are then referred to psychologists. Psychiatrists whose practices are primarily in the delivery of medications may also refer patients to psychologists for psychotherapy or other services. In light of this finding, psychologists should consider establishing collaborative relationships with psychiatrists. Such collaborative relationships include providing psychological and neuropsychological assessments to assist psychiatrists in the differential diagnosis and treatment planning of older adults or in forensic cases. Psychologists may also want to consider affiliating with hospital psychiatry departments as a means to establish collaborative relationships with psychiatrists.

#### *Effect of Managed Care on Psychologists' Income*

Managed care may reduce psychologists' income by transferring the competitive effect of supply dynamics onto individual providers. Managed care firms and HMOs rely on the overall supply of psychologists and other providers in a particular market or region to create provider panels for that market or region, thereby excluding some psychologists from delivering services to members and generating income. The supply of psychologists and other mental health providers in California may allow managed care firms to set unusually low fees, or raise fees at a slower rate, with the knowledge that competition between providers and provider groups will allow them to maintain panel staff rates. If the supply of psychologists in California continues to grow at the current rate, the effect on income for psychologists in the market, and those trying to enter the market, may be substantial.

Regarding the effect of payment sources on income, the results of this study show that increased reliance on fees from managed care, in comparison to traditional indemnity insurance, reduces psychologists' income. This is not a new finding for health services researchers or professional psychologists. Large numbers of psychologists have reported that managed care has constrained their practice in ways that directly and indirectly affect income (Phelps et al., 1998). Given the near universal dominance of managed care in this country, at minimum these results may represent the future income patterns of psychologists in markets outside of California. In addition, the observed effect of managed care may underestimate how it may lead to reductions in practitioner income. The effect may be greater if more psychologists are excluded or removed

from panels, or other competing providers are referred patients by behavioral health care firms. Psychologists in private practice cannot anticipate earning robust income if access to their services by plan members are reduced or eliminated.

Yet managed care may not require restricted benefits and other characteristics that reduce access and utilization in order for it to remain as a profitable delivery system. Sturm's detailed analyses suggest that the effect of removing a \$25,000 annual limit to mental health benefits or removing a \$10,000 annual limit on substance abuse benefits under managed care would increase insurance payments by only one dollar and six cents per enrollee per year, respectively (Sturm, 1997; Sturm, 1999). With nearly three quarters of the privately insured population enrolled in managed care, the response of professional psychology to the delivery of psychological services under managed care should include a number of public interest strategies, including initiatives to expand benefits (Findlay, 1999). The virtual dominance of managed behavioral health care in this country suggests that obtaining payments from fee for service indemnity insurance may be akin to searching for gold nuggets in a virtually empty stream bed.

Psychologists' increased reliance on public financing systems (e.g., Medicare or Medicaid), in comparison to fee for service financing, has no differential effect on income in this study. This finding suggests that reliance on payments from the public system does not significantly erode income. Yet, the low overall participate rate in public systems by these psychologists may have accounted for this effect. Psychologists' use of particular forms of payment (e.g., salary) were not controlled for in this analysis due to sample size limitations. Inclusion of these characteristics in future studies using a larger sample may highlight how income is affected by public payment systems.

### *Clinical Experience and Income*

Age differences were evident in overall net income. However, when other important factors were controlled for (e.g., managed care participation rate and years of experience) no significant age-related differences were found. In contrast, the significant role of experience, particularly for psychologists in the middle years of their career, once again substantiates a human capital model of income generation, whereby investment in one's profession over time results in increased income relative to less experienced peers. While encouraging, this cross-

sectional study result may be deceiving when data on income from other sources are taken into consideration. The results of APA salary surveys over the past decade clearly indicate that the declines in income over time are acutely felt by more experienced psychologists. Thus, the longstanding income differential between these groups may be shrinking due to pressures felt by more experienced psychologists.

Among psychologists in this study, independent practitioners with less than five years experience reported mean and median income figures considerably less than those same psychologists reporting income in the APA Salary Survey (\$63,000 & \$60,00 versus \$75,000 and 78,000, respectively) (Williams et al., 2000). In contrast, mean and median income figures for California psychologists in independent practice with more experience were the same or greater than for psychologists in the APA Salary Survey. Important differences exist between the two survey instruments, samples employed, and definitions of criterion groups to make exact comparisons tentative. Yet, it is possible to conclude that the lower income figures for less experienced psychologists in California are due to the effects of provider supply and managed care in comparison to how those factors affect more experienced psychologists.

### Conclusions

Perhaps the most important finding from this study is that psychologists' income is shaped by a set of interrelated factors. Among these are market forces, such as managed care, employment rates, and per capita income. Other factors include mental health workforce supply dynamics, and public policies as they relate to the provision of insurance and the scope of public mental health services. The APA, state psychological associations, and other institutions that represent psychologists may find this information relevant in their efforts to assist, educate, and represent practitioner members to maintain a successful practice amidst substantial changes in the country's mental health system.

### References

- American Psychological Association. (1999a). *Characteristics of doctoral-level practitioner APA members in California*. Washington, D.C.: American Psychological Association.
- American Psychological Association. (1999b). *Demographic characteristics of APA members by membership status: 1998*. Washington, DC: American Psychological Association.
- Becker, G. S. (1975). *Human Capital*. (2nd ed.). New York: National Bureau of Economic Research.
- Beutler, L. E., Williams, R. E., Wakefield, P. J., & Entwistle, S. R. (1996). Bridging scientist and practitioner perspectives in clinical psychology. *American Psychologist, 50*, 984-994.
- Board of Psychology. (2000). Personal Communication (September 29, 2000) : Board of Psychology.
- Buck, J. A., Teich, J. L., Umland, B., & Stein, M. (1999). Behavioral health benefits in employer-sponsored health plans, 1997. *Health Affairs, 18*, 78.
- Buck, J. A., & Umland, B. (1997). Covering mental health and substance abuse services. *Health Affairs, 16*, 120-126.
- Bureau of Health Professions: Office of Research and Planning. (1998). *Area Resources File*, [CD-ROM]. Health Resources and Services Administration.
- Cattaneo & Stroud, I. (2000). *2000 statewide HMO enrollment study*, [On-line]. Author. Available: [www.cattaneostroud.com](http://www.cattaneostroud.com).
- Cleary, P. (1989). The need and demand for mental health services. In C. Taube, D. Mechanic, & A. Hohmann (Eds.), *The future of mental health services research*. (pp. pp. 161-183). Washington, D C.: Department of Health and Human Services.
- Department of Consumer Affairs. (2000). *Licensed clinical psychologists 1999*, [Electronic data base]. Department of Consumer Affairs: Public Information Unit [1999, 1999].
- Digest of Managed Care. (1999). InterStudy report provides county-level data on HMO enrollment, penetration, competition, and reimbursement rates. *The Digest of Managed Care*, 2-3.
- Findlay, S. (1999). Managed behavioral health care In 1999: An industry at a crossroads. *Health Affairs, 18*(1), 116-124.
- Gold, S. N., & Shapiro, A. E. (1995). Impact of managed care on private practice psychologists: Florida study. *Psychotherapy in Private Practice, 14*, 43-54.

- Goldman, W., McCulloch, J., & Sturm, R. (1998). Costs and use of mental health services Before and after managed care. *Health Affairs, 17*, 40-52.
- Gresenz, C. R., Stockdale, S. E., & Wells, K. B. (2000). Community effects on access to behavioral health care. *Health Services Research, 35*, 293-306.
- HayGroup. (1998). *Health care plan design and cost trends: 1988 through 1997*. Washington, D.C.: National Association of Psychiatric Health Systems.
- Hermann, R. C., Dorwat, R. A., Hoover, C. W., & Brody, J. (1995). Variation in ECT use in the United States. *American Journal of Psychiatry, 152*, 869-975.
- Ivey, S. L., Scheffler, R. M., & Zazzali, J. L. (1998). Supply dynamics of the mental health workforce: implications for health policy. *The Milbank Quarterly, 76*, 25-58.
- Jensen, G. A., Rost, K., & Burton, R. P. D. (1998). Mental health insurance in the 1990s: Are employers offering less to more? *Health Affairs, 17*, 201-208.
- Johnson, F. E., McKirgan, L. W., Coplin, M. A., Vernava, A. M., Longo, W. E., Wade, T. P., & Virgo, K. S. (1996). Geographic variation in patient surveillance after colon cancer surgery. *Journal of Clinical Oncology, 14*(1), 183-187.
- Krakauer, H., Bailey, R. C., Cooper, H., Yu, W. K., Skellan, K. J., & Kattakkuzhy, G. (1995). The systematic assessment of variations in medical practices and their outcomes. *Public Health Reports, 110*(1), 2-12.
- Leaf, P., Bruce, M., Tischler, G., Freeman, D., Weisman, M., & JK, M. (1988). Factors affecting the utilization of specialty and general medical mental health services. *Medical Care, 26*, 9-26.
- McKusick, D., Mark, T., King, E., Harwood, R., Buck, J. A., Dilonardo, J., & Genuardi, J. S. (1998). Spending for mental health and substance abuse treatment: 1996. *Health Affairs, 17*, 147-157.
- Norcross, J. C., & Wogan, M. (1983). American psychotherapists of diverse persuasions: Characteristics, theories, practices, and clients. *Psychotherapy: Theory, Research, Practice, Training, 14*, 529-539.
- O'Neil, E. (2000). Psychology and the American health professional community in transition. *Professional Psychology: Research & Practice., 31*(3), 264-265.
- Pedhazur, E. J., & Schmelkin, L. P. (1991). *Measurement, design, and analysis: An integrated approach*. Hillsdale: Lawrence Erlbaum Associates.

- Peterson, R. L., & Rodolfa, E. R. (2000). Too many psychologists? Worrying about Robiner and Crew (2000) and worrying with them. *Professional Psychology: Research and Practice*, 31, 272-275.
- Phelps, R., Eisman, E., & Kohout, J. (1998). Psychological practice and managed care: Results of the CAPP practitioner survey. *Professional Psychology: Research & Practice.*, 29, 31-36.
- Pingitore, D. P., Scheffler, R. M., Haley, M., Sentell, T., & Schwalm, D. (2001a). Professional psychology in a new era: Practice-based evidence from California. *Professional Psychology: Research and Practice, Manuscript submitted for consideration.*
- Pingitore, D. P., Scheffler, R. M., Sentell, T., & West, J. C. (2001b). Comparison of psychiatrists and psychologists in clinical practice. *Manuscript submitted for publication.*
- Pion, G., Mednick, M., Astin, H., Hall, C., Kenkel, M., Keita, G., Kohout, J., & Kelleher J. (1996). The shifting gender composition of psychology: Trends and implications for the discipline. *American Psychologist*, 51, 509-528.
- Psychotherapy Finances. (1997). *Therapists' fee and incomes are under growing pressure* . Jupiter, FLA: Psychotherapy Finances.
- Robiner, W. N., & Crew, D. P. (2000). Rightsizing the workforce of psychologist in health care: Trends from licensing boards, training programs, and managed care. *Professional Psychology: Research & Practice.*, 31, 34-41.
- Rothbaum, P. A., Bernstein, D. M., Haller, O., Phelps, R., & Kohout, J. (1998). New Jersey psychologists' report on managed mental health care. *Professional Psychology: Research and Practice*, 29, 43-51.
- Schauffler, H. H., McMenamin, S., & Zawacki, H. (2000). *Health care trends and indicators in California and the United States*. Menlo Park, CA: Henry J. Kaiser Family Foundation.
- Scheffler, R. M., Pincus, H. M., Pingitore, D. P., & Schwalm, D. (2000). *Signals from the market: The impact of managed care on psychiatrist's income*. Paper presented at the 2000 Annual Meeting, Association for Health Services Research, Los Angeles, CA.
- Sentell, T., Pingitore, D. P., Scheffler, R. M., & Schwalm, D. (2000). Gender, practice patterns, and income differences among California psychologists in clinical practice. *Manuscript submitted for publication consideration.*

- Sturm, R. (1997). How expensive is unlimited mental health care coverage under managed care? *Journal of the American Medical Association, 278*, 1533-1537.
- Sturm, R., Zhang, W., Schoenbaum, M. (1999). How expensive are unlimited substance abuse benefits under managed care? *Journal of Behavioral Health Services Research, 26*, 203-210.
- Sturm, R., Meredith, L. S., & Wells, K. B. (1996). Provider choice and continuity for the treatment of depression. *Medical Care, 34*, 723-734.
- Taube, C. A., Burns, B. J., & Kesler, L. (1984). Patients of psychiatrists and psychologists in office-based practice:1980. *American Psychologist*(1435-1447).
- U.S. Department of Commerce: U.S. Census Bureau. (2000). *About metropolitan areas*, [[On-line]]. U.S. Department of Commerce.
- Wells, K. B., Hays, R. D., Burnam, M. A., Rogers, W., Greenfield, S., & Ware, J. (1989). Detection of depressive disorder for patients receiving prepaid or fee-for-service care: Results from the medical outcomes study. *Journal of the American Medical Association, 262*, 3298-3302.
- Williams, S., Kohout, J., & Wicherski, M. (1999). Salary changes among psychologists by gender and years of experience. *Psychiatric Services, 50*, 1155.
- Williams, S., Wicherski, M., & Kohout, J. L. (2000). *Salaries in psychology 1999: Report of the 1999 APA salary survey* . Washington, D.C.: American Psychological Association.