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Training Comparison Among Three Professions Prescribing Psychoactive Medications: Psychiatric Nurse Practitioners, Physicians, and Pharmacologically Trained Psychologists



Mark Muse

Muse Psychological Associates



Robert E. McGrath

Fairleigh Dickinson University

Academic training leading to prescriptive authority is compared among psychiatric nurse practitioners, physicians, and pharmacologically trained psychologists. Statistics are presented on the relative emphasis that programs serving each discipline place on the preparation of their respective students in academic and clinical content areas that are relevant to the prescribing of psychoactive medication for the mental health population. An analysis of these statistics substantiates the assertion that pharmacologically trained psychologists are well prepared academically to incorporate prescriptive authority within their competencies. Indeed, the statistics point to multiple content areas in which the other professions are relatively deficient in comparison to pharmacologically trained psychologists' preparation. © 2009 Wiley Periodicals, Inc. *J Clin Psychol* 66: 96–103, 2010.

Keywords: psychopharmacology; pharmacotherapy; prescriptive authority; medical psychologist; prescribing psychologist; pharmacologically-trained psychologist; R×P

Pharmacologically trained psychologists are alternately referred to as *prescribing psychologists*, as in the state licensing law of New Mexico, or *medical psychologists*, as is the case in the Louisiana licensing law. Medical psychologist is the term under which the Drug Enforcement Administration (DEA) issues a Controlled Substance Registration Certificate. The term *pharmacologically trained psychologist* is used preferentially in this article as it encompasses not only those psychologists who are licensed prescribers but also those who consult with prescribers-physicians and nurse practitioners and recommend medications to such prescribers in jurisdictions where prescribing laws have not been enacted (Muse, Brown, Cothran-Ross, & Kapalka, in press).

Correspondence concerning this article should be addressed to: Mark Muse, Muse Psychological Associates, 604 Crocus Dr., Rockville, MD 20850; e-mail: drmarkmuse1@yahoo.com

The comparison of pharmacologically trained psychologists¹ training with other prescribing professionals is a necessary step in establishing the relative preparedness of providers whose behavioral health interventions include medication (Muse & McGrath, in press). A previous study (Speer & Bess, 2003) compared the training of physicians, nurse practitioners, clinical pharmacy specialists, and physician assistants. Speer and Bess concluded in that study that physicians' training in pharmacology was equivalent to that of pharmacy specialists, but physicians' training in pharmacokinetics and therapeutics was less than that of clinical pharmacists. The study, however, was limited to institutions granting entry-level prescribing degrees within the State of Tennessee. Within psychology, a preliminary comparison (Post, Ally, & Quillin, 2002) was made among pharmacologically trained psychologists, physicians, nurse practitioners, dentists, podiatrists, and optometrists; the authors concluded that pharmacologically trained psychologists' training is comparable or superior to other prescribing professionals. However, this last study represented a limited survey of institutions granting graduate degrees within the State of Louisiana (Glenn A. Ally, personal communication, January 29, 2009).

Method

The current study sought to compare the training of psychologists who are competent to prescribe medication to the training of psychiatric nurse practitioners and physicians in key content areas directly relevant to the prescribing of psychoactive medications: biochemistry and neuroscience; pharmacology; clinical practicum; research and statistics required to critically evaluate the effectiveness of pharmacological agents and other therapeutic interventions; behavioral assessment and diagnosis, including the use of psychometrics; psychosocial interventions, psychotherapy and other nonpharmacological therapeutic options; and foundations in mental health and the behavioral sciences. This comparison required gathering data from multiple sources because no single document exists that specifies a universal curriculum for any of the three professions. In making the present analysis, we have relied on two types of documents: (a) curriculum guidelines issued by national organizations for the three professions and (b) actual curricula currently used in training students within the three professions. The latter involved a small national sampling of academic facilities granting entry-level qualifying degrees for the prescription of psychoactive medication. In all cases, this information was derived from the institutions' respective Web sites as of January 1, 2009.

Psychiatric Nurse Practitioners' Preparation to Prescribe Psychotropic Medications

There are over 530 nurse specialist boards, of which 102 pertain to prescriptive authority (Kenward, 2007). Proposed training models for the various specialties within nursing have been promulgated by several national organizations independently or under the auspices of the United States Department of Health and Human Services (DHHS). Most relevant to the current question are those curriculum guidelines aimed at programs training nurse practitioners within the specialties of primary care and psychiatric nursing. Guidelines for adding prescriptive authority to nursing credentials include graduate courses in various areas of nursing leading to a master's degree and recommendations that nurse practitioners be instructed by doctoral-level professors in the pharmacokinetics and pharmacodynamics of pharmacotherapeutics (DHHS/Public Health Service et al., 1998). However, the

specific number of credit hours in any area of instruction is not specified but left to the individual faculties to determine.

Guidelines by national organizations for the inclusion of a mental health curriculum in the training of primary care nurse practitioners (DHHS et al., 2002) include broad yet relatively vague competencies to assess and treat mental health concerns within the different populations served by such practitioners; namely, pediatric, adult, geriatric, family, and women. No specific curriculum is promoted to cover these end-of-training, entry-level expectations. Recommendations for the preparation of psychiatric nurse practitioners (National Panel for Psychiatric-Mental Health NP Competencies, 2002) include developing more detailed competence in the assessment and diagnosis of psychiatric disorders as well as in psychosocial and pharmacotherapy treatment of such disorders, but do not specify particular topics within each domain or the number of training hours to be dedicated to each.

The actual curriculum leading to prescriptive authority taught at nursing programs in the United States varies in its emphasis on the acquisition of mental health competencies. Although nurse practitioners in a variety of specialties may be granted authority to prescribe psychoactive medications, there is no evidence to suggest that nurse practitioners are extensively involved in the treatment of mental disorders unless they have received specialty training. Accordingly, the curriculum comparison was restricted to programs offering specialty training in psychiatric nursing. A survey of five psychiatric nurse practitioner programs provided the data presented in Table 1.

Physicians' Preparation to Prescribe Psychotropics

Although national organizations such as the Association of American Medical Colleges suggest that content of courses offered at medical school should be made explicit (Liaison Committee on Medical Education, 2008), it is largely left up to the individual medical school to determine specific content and to interpret which areas of medical training receive emphasis (American Osteopathic Association, 2009). In general, there is less didactic preparation than in other clinical graduate studies, such as pharmacy, nursing, and psychology; although the first two years of medical school generally focus on didactic instruction, the last two years are dedicated primarily to clinical experience through rotations among the medical specialties. In this respect, medical school, in keeping with its historical roots, is largely built on an apprenticeship model with overlapping academic preparation (Cook, Irby, Sullivan, & Ludmerer, 2006).

Medical school is not usually structured around semester credits and their equivalence in contact hours. It is, therefore, difficult to discern the number of hours allotted to particular content domains, as there is not generally an equivalent of the traditional graduate class assigned credit hours according to hours spent in the lecture hall, laboratory, or in practicum experience (Muse, 2009). To assign contact hour equivalents, the following procedure was used: Curricula were reviewed for the content domain of interest. For any semester in which the topic seemed to be covered, the number of contact hours for that topic was estimated by assuming a standard load of 15 credits per semester, dividing that number by the number of content domains covered in the semester, and then multiplying the resulting number of credits by 15, based on the standard ratio of 15 contact hours per academic credit. The resulting mean estimate across five medical schools is provided in Table 1.

Table 1
Comparison of Entry-Level Training Models Leading to Prescriptive Authority

Profession	Minimum years post-baccalaureate	Graduate contact hours mean (and standard deviation)							
		Biochemistry-neuroscience	Pharmacology	Clinical practicum	Research-statistics	Behavioral assessment/diagnosis & psychometrics	Psychosocial interventions-psychotherapy	Other mental health/psychology course work	
Psychiatric nurse practitioner ^a	2.5	48 (7)	56 (7)	146 (33)	99 (41)	30 (23)	32 (29)	128 (77)	
Medicine ^b	4	216 (20)	59 (28)	855 (101)	33 (20)	18 (25)	9 (20)	15 (21)	
Psychology ^c	6.5	161 (43)	288 (63)	680 (83)	225 (64)	267 (61)	255 (161)	351 (152)	

Note. Values were computed equating one academic credit with 15 contact hours.

^aBased on nurse practitioner master's degree programs at the Medical University of North Carolina, St. Joseph's College, University of Virginia, Vanderbilt University, and Yale University.

^bBased on M.D. or D.O. programs, without further specialization residency, at the Mayo College of Medicine, Yale University, Tufts University, Stanford University, and A.T. Still University.

^cBased on Ph.D., Ed.D., or Psy.D. programs plus the postdoctoral M.S. program at Alliant University, Fairleigh Dickinson University, the Massachusetts School of Professional Psychology, New Mexico State University, and NOVA Southeastern University.

The curriculum materials used for the comparison reflected training necessary to achieve legal recognition of competence to prescribe psychotropics. In the case of physicians, this occurs at the end of medical school. Because specialization in psychiatry is not a legal requirement for the diagnosis and pharmacological treatment of mental disorders—and, in fact, research consistently demonstrates that the bulk of medical care for individuals with mental disorders is provided by physicians without specialty training in psychiatry (Pincus et al., 1998)—, the general medical school curriculum is used in the comparison.

Pharmacologically Trained Psychologists' Preparation to Prescribe Psychotropics

A model curriculum for the training of psychologists in psychopharmacology has been set down by the American Psychological Association (1996) and requires that the training be undertaken as postdoctoral studies encompassing the following content areas: neurosciences, pharmacology and psychopharmacology, physiology and pathophysiology, physical and laboratory assessment, clinical pharmacotherapeutics, and clinical practicum in psychopharmacology. Such specialty training is subsequent to a clinically based doctoral program in which content areas include coursework in mental health assessment and treatment, clinical research methods, foundation studies in the behavioral sciences, and a clinical internship. Currently, only five programs in the country offer a postdoctoral master's degree programs in clinical psychopharmacology for psychologists. All training programs in preparation for prescriptive authority require doctoral-level licensure as a psychologist prior to matriculation. All, except one, are located within the same college or school of psychology that provides doctoral training in clinical psychology. For New Mexico State University, the program is housed instead within the College of Education, which offers a doctoral program in counseling psychology. Table 1 presents the total graduate contact hours required to qualify for the postdoctoral Master of Science degree in clinical psychopharmacology; these hours include graduate study to earn a doctoral degree in psychology and the postdoctoral master's degree.

Comparisons

Because there are only five institutions in the country that currently offer the M.S. in clinical psychopharmacology in preparation for prescriptive authority for psychologists, the entire population of such programs was sampled. To provide a comparison, five medical schools and five nursing schools were also selected from their respective larger populations. In an attempt to cover the breadth of training among the latter institutions, those medical school programs selected included two programs housed in institutions ranked among the top 10 research universities by *US News and World Report* (2009), two mid-level clinically oriented universities, and one unranked university granting the doctorate of osteopathy degree rather than the doctorate of medicine. Five nurse practitioner programs were also chosen for comparison, including two from top 10 ranked schools, two mid-level schools, and one unranked school. Candidates for inclusion were reviewed to ensure that sufficient information on their respective Web sites was available to allow the computations presented in this article.

Results

A comparison across all three professions' current training practices yields data on the relative strengths and weakness of each of the three disciplines involved in

prescribing psychoactive medications at the entry level. Physicians graduating from the institutions reviewed receive somewhat greater didactic instruction in biochemistry and neuroscience than pharmacologically trained psychologists or nurse practitioners, and they receive greater clinical experience because of the nature of their curriculum. In all other content areas critical to prescribing psychoactive medication, the pharmacologically trained psychologist receives more extensive preparation than either the physician or the psychiatric nurse practitioner attending the programs sampled. Psychologists preparing for prescriptive authority, for example, receive more than four times as much instruction in pharmacology than physicians and more than six times the training that psychiatric nurse practitioners receive. In the diagnosis of mental health disorders and use of psychometrics as well as in behavioral health assessment in general, psychologists receive 15 times more preparation than physicians and eight times the preparation of psychiatric nurse practitioners. With respect to therapeutic interventions other than medication, that is, psychosocial interventions, psychologists receive 27 times the graduate-level preparation than physicians and eight times the preparation of psychiatric nurse practitioners. Pharmacologically trained psychologists receive 23 times more postgraduate preparation in the foundations of psychology and mental health than physicians and nearly three times that of psychiatric nurse practitioners. In the area of research design and interpretation of research results, the pharmacologically trained psychologist has more than twice the training as the psychiatric nurse practitioner and seven times that of physicians. Finally, psychologists preparing for entry-level prescriptive authority receive 2.5 to 4 years more of graduate instruction than do their entry-level prescribing counterparts. During this extended training period, pharmacologically trained psychologists are exposed to greater didactic material in those content areas most relevant to the incorporation of pharmacotherapy in the clinical treatment of mental, emotional, and behavioral conditions.

Discussion

The purpose of the present study has been to consider the argument, often raised in legislative hearings for bills intended to authorize prescriptive authority for psychologists (Tilus, 2009), that the training offered to psychologists in preparation for prescriptive authority is insufficient. The results suggest that pharmacologically trained psychologists have as much or more education in psychopharmacology as do other *entry-level* prescribers, including physicians. Of course, there is nothing to prevent a pharmacologically trained psychologist from completing further specialty training and board certification (see www.amphome.org/abmp.html) after obtaining entry-level prescriptive authority, in the same way that aspiring psychiatrists continue their education in residency *after* having obtained entry-level prescription authority with their basic medical degree.

A second criticism sometimes leveled at pharmacologically trained psychologists is that their didactic training is less rigorous because it is largely accomplished through distant learning modules that offer academic material online, augmenting electronic transmittal of lectures with readings, live chats, and periodic classroom experience. Given that prescribing psychologist (R×P) training occurs post-licensure, so that participants typically are employed full-time in clinical practice and are geographically dispersed, it is not surprising that these programs rely heavily on distance education as a method of instruction. In response to this concern, it may be noted that, at least in terms of learning outcomes, distance education courses tend to slightly outperform

traditional didactic instruction (Allen et al., 2004), and medical schools are also increasingly relying upon distance education in their training (see www.ivimeds.org).

A limitation of the present study is its small sample size, reflecting the small number of graduate colleges that offer the postdoctoral master's degree in clinical psychopharmacology. The use of the same size sample to represent nursing and medical training could be faulted. In response, it is noteworthy that despite the purposeful selection of a variety of types of training sites and the small sample sizes, the standard deviations are all small relative to the mean number of hours. In the key domains of biochemistry-neurochemistry, pharmacology, and clinical practicum, values for the coefficient of variation (standard deviation divided by the mean) varied between .09 and .47, with a mean of .20. That is, on average the standard deviation was only one fifth of the mean. The finding suggests relatively little variability across programs in the amount of time devoted to these knowledge domains.

The present study reflects the young yet burgeoning R×P movement and, as such, reflects the inherent limitations of the movement at this time. It is a much-needed study that is meant to serve as a beginning point for further comparisons in the future as the movement continues to grow. Changes that may need to be taken into account in the future include the outcome of a current debate (Ax, Fagan, & Resnick, 2009) over whether psychopharmacology training should be offered, at least in part, in psychology doctoral programs. This debate, however, has only recently emerged and appears to be considerable distance away from altering the current statistics offered in this article, particularly because the American Psychological Association (2008) has recently renewed its commitment to R×P training as a postdoctoral activity. It should also be mentioned that a significant number of nurse practitioner programs are preparing to increase required credit hours with the implementation of the Doctor of Nursing Practice degree (American Association of Colleges of Nursing, 2004), but this process is not expected to have an effect on the minimum requirements for nurses to prescribe.

Conclusions

The present study undermines the argument that psychologists who extend their formal training to obtain the postdoctoral Master of Science degree in clinical psychopharmacology are inferior to other entry-level professions in terms of preparedness for prescribing psychoactive medications to the mental health population. In the majority of content areas pertaining to the prescribing of psychoactive medication to mental health clientele, pharmacologically trained psychologists are better prepared than practitioners in other prescribing professions trained in the programs included in these analyses. The substantial preparation that pharmacologically trained psychologists receive in the diagnosis and treatment of behavioral disorders, including pharmacotherapy, places this profession at the forefront of prescribing mental health providers. The results of this study also suggest that psychiatric nurse practitioners are better prepared at the entry level in many of the content areas most relevant to prescribing medication with the mental health population than are physicians prior to specialty-training as a resident in psychiatry.

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