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What Oregon Psychologists Think and Know About Prescriptive Authority: Divided Views and Data-Driven Change

Tanya L. Tompkins[1] and Jenna D. Johnson
Department of Psychology
Linfield College

Following a veto of a prescriptive authority (RxP) bill in Oregon, 397 of 743 randomly selected psychologists were surveyed online regarding their attitudes and knowledge. Participants were randomly assigned to a control ($n = 203$) or education ($n = 194$) condition. After being exposed to information regarding access, training, and legislation, education participants completed post-test measures. Evidence supporting proponents' argument of improved access was not forthcoming. There was a division about scope expansion (43% support, 32% opposed, 25% undecided). Respondents' knowledge of RxP was minimal, but education increased knowledge. Views were more stable, with attitudes shifting only in targeted areas. Using a "cultural cognition" framework, the discussion centers on exploring the need to evaluate RxP and use this information to educate psychologists about this issue.

Over the past two decades, an important, and at times contentious, debate has emerged within the field about whether doctoral-level clinical psychologists should be granted the right to prescribe psychotropic medication after completing additional training in clinical psychopharmacology (DeLeon, Dunivin, & Newman, 2002; Heiby, 2002; Heiby, 2010; Heiby, DeLeon, & Anderson, 2004; McGrath, 2010; McGrath & Muse, 2010; Muse & McGrath, 2010; Resnick & Norcross, 2002; Robiner et al., 2002). Since the American Psychological Association (APA) formally endorsed the pursuit of prescriptive authority (RxP) for psychologists in 1995, over half of all states have considered legislation (see Figure 1). However, only in the U.S. territory of Guam in 1999, New Mexico in 2002, and Louisiana in 2004 have licensed psychologists been granted prescriptive authority. Illinois became the third state to grant RxP to psychologists in June 2014, although the training requirements and formulary restrictions are notably more stringent.

[1]Correspondence concerning this article should be addressed to Tanya L. Tompkins, Department of Psychology, Linfield College, McMinnville, OR 97128, USA. E-mail: tatompki@linfield.edu

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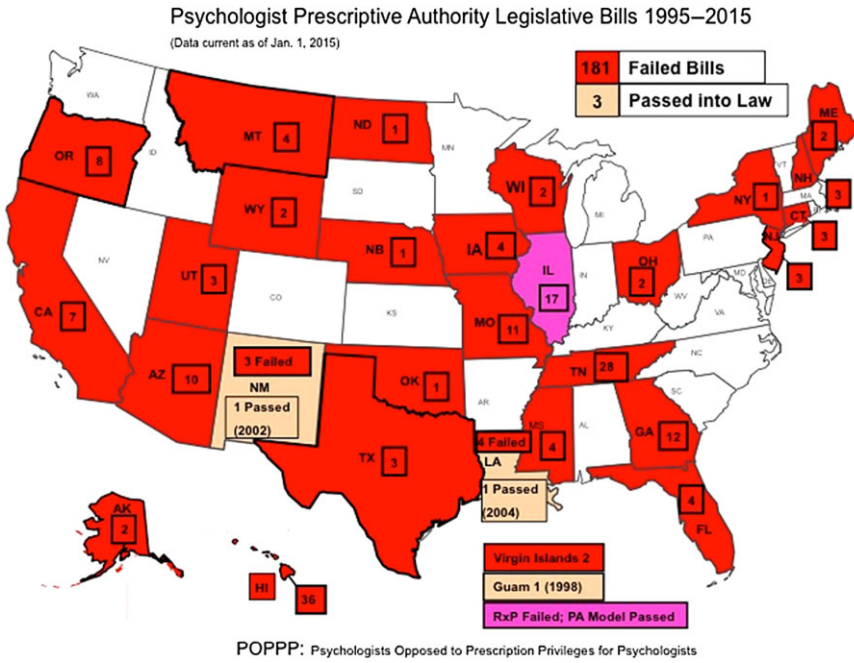

Figure 1. Map documenting psychologist prescriptive authority legislative activity from 1995 to 2014. Updated and modified with permission from the map originally published by Robiner et al. (2013).

A range of arguments has been advanced in support of the RxP movement, nationally and in Oregon. Proponents, during a short legislative session in February 2010, successfully persuaded the legislators in the house and senate to pass a bill (Senate Bill 1046) that would have made Oregon the third state to allow psychologists to prescribe psychotropic medications. Their arguments hinged primarily on the need to improve access to psychiatric care, especially among rural Oregonians and suggested that psychologists, who overwhelmingly support scope of practice expansion, are already safely and effectively prescribing elsewhere, such as in the military, New Mexico, and Louisiana. However, opponents and Governor Kulongoski, who vetoed the bill in April 2010, raised concerns about the gravity of the policy shift and the lack of evidence to support it. In his veto letter, Kulongoski wrote, "I believe that a policy change of this significance requires more safeguards, further study and greater public input than was provided during the February special session" (Kulongoski, 2010).

Echoing the call for evidence-based decision making, opponents, in both the national and Oregon debate, countered that there are no data to suggest that

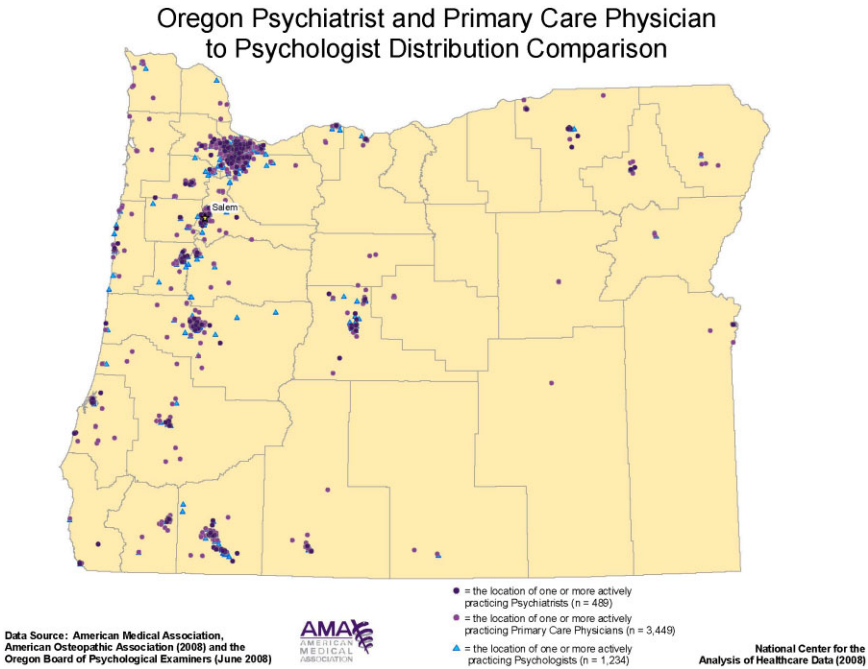

Figure 2. These data show the geographic distribution comparison for psychiatrists, primary care physicians, and psychologists in Oregon. Arguments for improving rural access are advanced by proponents but the data suggest similar practice locations with more primary care physicians in outlying rural areas. Other states present similar geographic distributions. This figure is reproduced with the permission of the American Medical Association.

providing prescription privileges to psychologists will increase access to quality psychiatric care. This lack of study is particularly disturbing in light of the fact that psychologists have been prescribing for more than a decade. The extant data call into question claims of improved access. For example, as illustrated in Figure 2, psychologists, psychiatrists, and primary care physicians share similar demographic distribution patterns with the majority residing in urban areas (National Center for the Analysis of Healthcare Data, 2008). Additionally, data from New Mexico and Louisiana suggest that most prescribers either move out of the state (20%) and do not prescribe or primarily treat patients in urban (59%) versus rural settings (see Appendix A). Furthermore, past studies raise further questions about the legitimacy of the rural argument: (a) almost no psychologists were found to practice in true rural counties in a survey-based study of Illinois psychologists (Baird, 2007); (b) psychologists practicing in both non-metro and

urban areas perceived similar problems with access to trained medication prescribers in a study of Illinois (Baird, 2007) and Oregon psychologists (Campbell, Kearns, & Patchin, 2006); and (c) non-metro Illinois psychologists were no more likely than their urban counterparts to pursue training to become a prescriber (Baird, 2007). The current study seeks to evaluate the degree to which psychologists, especially those interested in pursuing training in RxP, practice in non-metro areas in Oregon in sufficient numbers to lend legitimacy to the claim of improved access. Additionally, whether providing evidence about practice patterns in RxP states results in changes in attitudes toward the argument of improved access will be explored.

A second major argument advanced by proponents of RxP centers on the assertion that psychologists can be adequately trained to safely prescribe. DeLeon and others (see Heiby et al., 2004) express concerns about the fact that the majority of psychotropic medications are prescribed by non-psychiatrist physicians with little to no mental health training (Lieberman, 2003). Pointing to a precedent for safe prescribing by other non-physician prescribers, models of training in the military with a successful track record, patterns of functional prescribing by psychologists in private practice, and an extensive history of safe prescribing practices, proponents suggest that psychologists can serve an important role in improving access to psychotropic medications (Heiby et al., 2004).

Opponents, however, question the adequacy of these claims, raising concerns about the current APA training model, in terms of background, breadth, and comprehensiveness of training, and questioning the parallels made between RxP and other non-physician prescribing training (Heiby, 2010; Heiby et al., 2004; Robiner, Tumlin, & Tompkins, 2013). For example, in his review of the history of RxP training models, Robiner et al. (2002) noted a decreasing trend in the amount of recommended training over time with the current APA model involving less than half of the amount of medical training required of any other prescribing professions (Heiby et al., 2004). Proposals by the initial APA task force (Smyer et al., 1993) and the Psychopharmacology Demonstration Project (PDP; American College of Neuropsychopharmacology, 2000) recommended that trainees possess a strong science background consonant with what is required of other non-physician prescribers who can independently prescribe. It is perplexing that proponents openly acknowledge these reduced standards, ". . . psychology has the core curriculum with probably the least overlap with traditional medical curricula" (Fox et al., 2009, p. 258), whereas surveys suggest that psychologists believe that in order to competently prescribe, their knowledge and training should be equivalent with that of other prescribers (Baird, 2007; Grandin & Blackmore, 2006).

Over a decade ago, Elaine Heiby (2002) proposed a moratorium on legislation enabling RxP until sound outcome data regarding RxP were forthcoming.

Although proponents persistently proclaim that the "numbers are indeed impressive," pointing to an estimated 200,000 psychotropic medication orders that had been safely and effectively written by Glen Ally's Louisiana colleagues alone in the first 4 years after enabling laws were enacted in that state (DeLeon, 2012, p. 6), these claims are vague (i.e., 200,000 patients or repeat scripts), appear to be divorced from reality, and are not grounded in actual data. As of 2014, there were 82 medical psychologists in Louisiana. In the 4 years between the passage of the bill and Ally's estimation, there were substantially fewer prescribing psychologists. In fact, in the only published attempt to evaluate prescribers, Levine, Wiggins, and Masse (2011) identified only 25 (14 in Louisiana, 9 in New Mexico) of the 59 psychologists with prescription privileges who were practicing part-time or full-time. Of the 17 interviewed, just over half reported that they saw 30 or more patients a week, four saw 20 or more patients a week (three were new to their practice or did not answer the questions) and approximately 70% to 80% of patients were prescribed medications by these prescribing psychologists. This translates into an estimated 300 patients treated with prescriptions (9 psychologists seeing 35 patients and 4 seeing 25 patients with both prescribing for 75% of their client load) written by these New Mexico psychologists. Thus, it appears as if this often-quoted statistic is either a steep overestimate or perhaps those who did not take part in the survey are overprescribing—a criticism leveled at primary care physicians. When opponents have asked for data to support such claims about practice patterns and safety, it is not forthcoming. It seems particularly surprising that so many prescriptions could be provided "without incident" (Fox et al., 2009, p. 264), as proponents claim, given the rates of significant adverse effects associated with psychoactive medications, some of which are extreme. For example, both conventional and atypical antipsychotics are associated with very concerning mortality rates in older adults typically within several months of initiating a medication trial (Kales et al., 2007; Wang et al., 2005). Whether prescribing psychologists are not detecting problems associated with medication use or whether they could be minimizing rates of adverse effects is unclear.

The only other study to date which has sought to evaluate the impact, utility, and safety of prescribing psychologists was similarly limited in scope and methodology. Shearer, Harmon, Seavey, and Tiu (2012) surveyed 47 primary care providers and residents who worked closely with *a single* prescribing psychologist in a family medicine clinic in an Army medical center. Although they concluded that their study provided evidence that prescribing psychologists "practice safely and effectively" (Shearer et al., 2012, p. 428), self-report data from extremely small samples provides limited evidence of safety or effectiveness. Echoing worries about safety, Hawaii's Governor cited consumer protection concerns in her rationale for vetoing Hawaii's bill in the only other state besides Oregon where enabling legislation passed both legislative chambers (Lingle, 2007).

Although opponents are often portrayed by proponents as unnecessarily raising concerns about potential health hazards (e.g., Resnick & Norcross, 2002), there is wisdom in exploring established routes that require a prerequisite science background and would not require legislative capital that could better be used to increase interprofessional care (Heiby et al., 2004; Robiner et al., 2013).

Finally, proponents of RxP typically present legislators with a narrative that paints a united group of psychologists against psychiatrists and other physicians who are opposed to scope expansion, not on principle, but out of a desire to protect their professional and financial interests. While most research conducted over the past 20 years continues to suggest that a majority of psychologists support the idea of prescriptive authority for psychologists (see Table 1), support is hardly unanimous (Walters, 2001). Past studies are generally limited by their small sample sizes and low response rates. Additionally, relatively few studies (see Table 1 for exceptions) have examined variables which might inform the legislative drive for RxP, namely whether psychologists would be personally interested in pursuing prescription privileges if prescriptive authority passed and whether psychologists are generally willing to invest in legislative efforts. Existing research suggests that significantly fewer psychologists would be willing to pursue prescription privileges than support the general idea of prescriptive authority, and among those who would pursue training, very few would be willing to invest the time or money required to obtain the appropriate post-doctoral training (e.g., Fagan, Ax, Liss, Resnick, & Moody, 2007). It is also noteworthy that survey items designed to assess support for RxP do not define "appropriate" training. Therefore, some psychologists may support the idea of prescribing in principle, but not the post-doctoral training in psychopharmacology model offered by the APA. Additionally, as noted by Knapp et al. (Knapp & Bowers, 1997; Knapp, Leitzel, & Keller, 2013), across time, RxP seems to be among the lowest legislative priorities, signaling that there are more pressing issues in need of attention. The current study builds on this work in exploring what Oregon psychologists think about legislative costs and efforts and whether they would pursue prescription privileges should legislation pass.

In addition, prior studies, in surveying psychologists about their attitudes, have generally not paid attention to pre-existing knowledge about relevant issues (Baird, 2007; Simpson & Kluck, 2007), nor have they examined views about cost, feasibility, and access. For example, although over 75% of Baird's sample of clinical psychologists in Illinois indicated that they were "familiar with issues surrounding prescription authority for psychologists," nearly half were not familiar with the training model used in the Department of Defense Psychopharmacology Demonstration Project (DoD PDP) and over one-third were not familiar with APA's training model. Both perceptions of knowledge

Table 1

Summary of Psychologists' Attitudes toward Prescription Privileges, 1981–2013

			Prescriptive authority			Becoming a prescriber		
Study	Sample	Response rate (%)	Agree (%)	Undecided (%)	Disagree (%)	Agree (%)	Undecided (%)	Disagree (%)
Bascue and Zlotowski (1981)	143 psychologists from Pennsylvania	52	59	—	41	36	6	58
Jarrett and Fairbank (1987)	358 members of APA	38	57	—	43	—	—	—
Boswell and Litwin (1992)	330 hospital-affiliated psychologists	57[a]	27	24	49	—	—	—
Folen (1989)	125 psychologist from Hawaii	—	46	9	45	—	—	—
Piotrowski and Lubin (1989)	270 APA Division 38 psychologists (Health)	40	30[b]	9	61	—	—	—
Barkley et al. (1990)	534 members of APA Division 12-1 (Child Clinical)	56	65	—	35	45	2	53
Frederick/Schneiders, Inc. (1990)	1,505 members of the APA Practice Directorate	—	68	3	29	—	—	—
Riley et al. ((1992)	81 graduate and internship training directors	54	34	14	52	—	—	—
Chatel et al. (1993)	1,223 APA Division 40 psychologists (Neuropsychology)	36	52	14	34	—	—	—
Kubiszyn & Carlson (1995)	571 APA Division 16 psychologists (School Psychology)	29	59	15	25	—	—	—
Ax et al. (1997)	226 directors of clinical training	—	72	11	18	34	27	40
	846 clinical graduate student interns	—	72	13	16	52	26	23
Evans & Murphy (1997)	99 directors of clinical training	60	17	47	35	—	—	—
Pimental et al. (1997)[b]	31 attendees of session on RxP—1990 pre-test	86	61	19	19	—	—	—
	31 attendees of session on RxP—1993 pre-test	—	94	0	6	—	—	—
	31 attendees of session on RxP—post-test	—	97	0	3	—	—	—
Tatman et al. ((1997)	302 graduate students in clinical psychology	60	70	17	13	62	26	11
Knapp and Bowers (1997)	258 psychologists from Pennsylvania	47	73	9	18	63	15	22
Klusman (1998)	126 military psychologists	—	78	—	12	—	—	—

Table 1

continued

Study	Sample	Response rate (%)	Prescriptive authority			Becoming a prescriber		
			Agree (%)	Undecided (%)	Disagree (%)	Agree (%)	Undecided (%)	Disagree (%)
Plante (1998)	218 active clinical diplomats of American Board of Professional Psychology	56	45	—	55	—	—	—
Sammons et al. (2000)	435 psychologists from Maryland	21	67	7	25	38	15	46
deMayo (2002)	374 clinical doctoral students	56	68	18	13	50	23	27
Luscher et al. (2002)	421 clinical doctoral students	50	56	16	29	43	18	39
Fagan et al. (2004)	245 directors of clinical training	57	62	17	20	25	28	47
	851 clinical graduate student interns	33	69	15	16	43	28	31
Fagan et al. (2007)	61 directors of clinical training	18	59	16	25	30	16	54
	185 clinical graduate student interns	16	62	21	17	46	19	35
	35 post-doctoral residents	13	71	23	6	40	29	31
	216 APA psychologists in independent practice	43	64	15	21	19	16	65
Grandin and Blackmore (2006)	363 graduate students in clinical psychology	—	—	—	—	68	—	32
Baird (2007)	306 psychologist from Illinois	37	61			30		
Rae et al. (2008)	213 APA Division 54 psychologists (Pediatric Psychology)	53	78	5	17	—	—	—
Knapp et al. (2013)	717 licensed psychologists from Pennsylvania	23	60	—	—	—	—	—
Current survey	397 licensed psychologists from Oregon	53	43	25	32	7	17	76

Note. APA = American Psychological Association; RxP = prescriptive authority.

[a]Although 57% of 582 psychologists provided data, this represented 31% of the original sample of 1,061 psychologists originally surveyed 1 year earlier with rates remaining fairly stable across time (27% agreed, 22% were unsure, 51% disagreed).

[b]Those who attended a session on RxP at the Illinois Psychological Association's 1997 conference were asked to answer survey items retrospectively, now and after participating in the session.

and what Oregon psychologists actually know about current training models were assessed in the current study. Additionally, in line with prior research, we sought to examine which arguments proponents and opponents found most compelling and whether presentation of information regarding access, training, and legislative history would lead to targeted changes in these attitudes or more broad-scale change. To date, only one study has explored whether "education" leads to changed attitudes regarding RxP. At the 1993 Illinois Psychological Association (IPA) convention, Pimental, Stout, Hoover, and Kamen (1997) examined retrospective reports of attitudes toward RxP as well as immediate pre-post changes in attitudes following an RxP presentation attended by 36 attendees, 31 of whom completed pre-post surveys. Although they demonstrated a shift toward increasingly favorable attitudes across time, these changes occurred in a small sample of self-selected individuals.

In summary, the current study builds on past work by assessing attitudes, knowledge, and expectations about the pursuit of RxP in a sample of Oregon psychologists and will allow us to evaluate the degree to which the presentation of factual information about access, training, and legislative efforts may shift opinions relating to prescription privileges for psychologists.

Method

Participants

From a list of 1,317 licensed Oregon psychologists, approximately 60% were randomly selected to participate in the online survey. Data collection occurred over a 2-year period beginning in September 2010 with the last survey completed in December 2012. Researchers contacted these psychologists by phone and email using the information listed by the Oregon Board of Psychologist Examiners or other publicly accessible websites (e.g., professional websites, white pages). Seventy-six psychologists were ineligible to participate (i.e., death, suspended license, moved out of state) and 72 did not have a working phone number or email address. Of the psychologists contacted, 397 completed the survey, 242 declined to participate, and 104 did not return contact yielding a response rate of 53%. Although directly contacting psychologists by phone and email resulted in higher response rates relative to prior studies that recruited via mail (Baird, 2007; Fagan et al., 2007; Sammons, Gorny, Zinner, & Allen, 2000), future researchers should note that this population can be difficult to recruit, even with more direct phone and email contact methods.

Procedure and Measures

Researchers randomly assigned eligible psychologists to either the control condition ($n = 203$) or education condition ($n = 194$). Regardless of assigned condition, all participants completed survey items about their views on RxP and provided basic demographic information. After providing information about their general views on RxP and basic demographics, education condition participants were asked to carefully and independently review the data on RxP (e.g., scope of practice for current prescribing psychologists, information about training, summary of legislative activity—see Appendices A, B, C) and then completed the post-test items assessing views and knowledge of RxP. Thus, the education consisted of a self-led review of objective information about RxP, not an attempt to persuade or dissuade about the value of RxP. Participants received an email with a unique link to the online survey and were asked to complete it within 2 weeks. Researchers sent an initial reminder via phone and email with weekly reminders thereafter until surveys were complete. Nine participants assigned to the education condition completed only pre-test data and were assigned to a *de facto* control condition status.

In light of the fact that prior studies have typically not assessed knowledge of RxP, participants first rated their perceived familiarity with the DoD and APA training models on a 5-point Likert scale ranging from 1 (*strongly agree*) to 5 (*strongly disagree*) and then answered a series of questions tapping knowledge of RxP. First, participants were asked to record answers in response to the question, "What states and/or US territories currently allow psychologists to prescribe psychotropic medications?" (Louisiana, New Mexico, Guam). Second, after being prompted to consider the recent APA Criteria for Education and Training in Preparation for Prescriptive Authority (2009), they were asked to identify the following: (1) the three APA prerequisites for admission to post-doctoral training programs in psychopharmacology (doctorate in clinical psychology, current licensure, health services provider); (2) the minimum contact hours for didactic training (400 hours)[2]; and (3) the minimum number of patients to be seen during the supervised clinical experience (100 patients).

[2]While the *APA Postdoctoral Education and Training Program in Psychopharmacology for Prescriptive Authority Guidelines* recommend 400 hours of contact with patients, we scored participants' answers correct if they reported between 300 and 500 hours. We asked participants to report the minimum number of patients that the APA recommends psychologists treat during their supervised training hours. Only 5.8% correctly reported that 100 patients be seen. It is important to note that current guidelines have moved away from a specific minimum number of patients to be seen which is why the results are not discussed.

Consistent with prior surveys, respondents rated a range of items regarding RxP (see Table 2). In addition, the following items were used to gauge broader support for RxP in the profession: (1) "Psychologists should expand their professional training and scope of clinical practice to include the administration and clinical management of psychotropic medications" rated on a 5-point scale from 1 (*unconditionally in favor*) to 5 (*unconditionally opposed*); (2) "Do you think the benefits outweigh the cost?" (*yes, no, undecided*); and (3) "I am interested in completing the appropriate training, as recommended by the APA, for prescribing privileges" and "I plan to obtain the necessary training and plan to prescribe medication" both rated on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*).

Results

The sample was composed of 199 males (50.1%), 193 females (48.6%), 1 transgender participant (0.3%), and 4 participants did not report their gender (1%). The mean age of participants was 53.65 years ($SD = 10.71$) and the psychologists who declined or were ineligible to participate ($M = 56.85$ years; $SD = 10.32$) were significantly older, $t(885) = 4.52$, $p < .01$. Respondents were predominately Caucasian (94.3%), but also included individuals of Hispanic (2.3%), Native Hawaiian or Asian-Pacific Islander (1.3%), Native American (0.8%), and mixed/other-ethnic origin (1.3%). Their highest degrees earned included PhD (69.4%), PsyD (30.3%), and EdD (0.3%). The mean length of time since degree completion was 20.00 years ($SD = 10.41$). Professional affiliations included the Oregon Psychological Association only (OPA; 20.1%), APA only (17.0%), both APA and OPA (28.0%), and Association for Psychological Science (5.5%), 16.3% reported other associations (e.g., county organizations) and 13.1% reported no professional affiliation. Participants reported spending the majority of their time providing direct clinical service (72%), either in private practice (55%) or another clinical setting (17%). Other professional activities included teaching (4.5%), training/supervision (5%), research (3.5%), consulting (6%), administration (8%), and other duties (1%).

Using the rural-urban continuum 2013 codes developed by the Economic Research Service (ERS) of the United States Department of Agriculture (2013), we coded participants' self-reported zip code for their primary practice. The 2013 codes rank counties based on population density from the 2010 U.S. Census data on a continuum from 1 (*a county in metro area with 1 million population or more*) to 9 (*a non-metro county completely rural or less than 2,500 urban population, not adjacent to metro area*). As shown in Table 3, the majority (96.2%; $n = 376$) of psychologists in the sample practiced in metropolitan areas (Codes 1–3). Only 3.8% ($n = 15$) of the sample practiced in non-metro counties (Codes 4–7), none of which are truly rural according to the ERS. An additional five licensed

Table 2

Survey Items on General Views, Training, Advocacy, and Reasons For and Against Extending Prescription Privileges to Psychologists

Item number and description	*M*	Disagree (%)	Neutral (%)	Agree (%)	Item source
14. A prescriptive training model for psychologists should resemble a medical training model.	3.36	19.2	34.8	46.0	9
15. My opinion about whether psychologists should have prescription privileges is based solely on the training model that will be used to prepare psychologists to prescribe.	2.57	52.5	27.1	20.4	5
16. Psychologists should receive the same amount of training in prescribing medication as other non-physician professionals who have prescription privileges.	3.77	10.5	20.3	69.2	5
17. Psychologists should pursue prescription privileges through existing licensure options (e.g. advance practice nurse or physician assistant licenses).	2.65	50.0	28.0	22.0	5
18. I plan to contact my state representative and/or senator to educate them about prescription privileges for psychologists.	2.02	73.6	18.7	7.7	5
19. Psychologist prescription privilege legislative efforts in Oregon should be postponed until more data are collected regarding prescription-related lawsuits in states that already have prescription privileges for psychologists.	2.62	45.6	37.4	17.0	5
20. The APA should pursue further research on the topic of prescription privileges for psychologists.	3.64	14.7	19.5	65.8	10
21. I worry about the cost of the legislative effort needed to obtain prescription privileges for psychologists in Oregon.	2.65	44.9	34.8	20.3	5
22. Will better serve underserved (e.g., rural) populations.	3.84	11.4	16.9	71.7	6

23. Will cause a greater focus on biological/medical factors, thereby diluting the distinction between psychiatry and psychology.	3.35	27.4	20.3	52.3	6
24. Will enhance the ability of psychologists to more effectively treat certain clients/patients.	3.73	16.2	13.2	70.6	4
25. Will significantly increase education costs.	3.69	8.2	28.1	63.8	6
26. Is an issue of economic survivability.	2.49	54.7	31.5	13.8	1,2, 3
27. Will not address unmet needs of vulnerable segments of the population because psychologists may be less available than physicians in rural and underserved areas.	2.64	49.0	33.2	17.9	6
28. Will improve access due to a shortage of psychiatrists.	3.87	7.1	18.6	74.3	1,2, 3
29. Will significantly increase mental health costs.	2.58	46.8	39.2	14	6
30. Will enhance psychologists' credibility.	3.03	33.3	28.2	38.4	5
31. Will result in medications taking the place of therapy.	2.88	43.6	24.5	31.9	4
32. Represents a logical extension of the practice of clinical psychology.	2.99	39.6	19.8	40.6	1,2,3,5,7
33. Will lead to rising malpractice rates for all psychologists.	3.72	13.3	23.3	63.4	4,5, 7
34. Will result in less over-prescription of medications because clinical psychologists are skilled in delivering other treatment approaches.	3.10	29.9	31.5	38.6	4, 7
35. Will cause a change to the identity of psychologists.	3.76	8.4	18.4	73.2	4
36. Makes sense as I already "functionally prescribe" psychotropic medication now when I collaborate with non-psychiatrist physicians.	2.73	46.3	24.7	29.0	5
37. Will lead to difficulty deciding on a proper method of training.	2.93	34.6	36.7	28.7	7
38. Will damage relations with psychiatry.	3.22	24.9	33.3	41.7	1,3, 4

Note. In many cases, similar information was assessed but wording of items varied across surveys. When source is noted, the item is identical or nearly identical to the item used in the current study but very similar questions may have also appeared in other studies not necessarily noted. APA = American Psychological Association; 1 = Ax et al. (1997); 2 = Boswell & Litwin (1992); 3 = Fagan et al. (2004); 4 = Sammons et al. (2000); 5 = Baird (2007); 6 = Kubiszyn & Carlson (1995); 7 = Luscher et al. (2002); 8 = Tatman et al. (1997); 9 = Grandin and Blackmore (2006); 10 = Robiner et al. (2003).

Table 3

Participant and General Population Information According to Oregon Rural-Urban Continuum Codes

	Sample		Populace	
Code and description	*n*	%	*n*	%
1. County in metro area with 1 million population or more	253	63.89	1,789,580	46.71
2. County in metro area of 250,000 to 1 million	80	20.20	742,453	19.38
3. County in metro area with fewer than 250,000	43	10.86	645,903	16.86
4. Non-metro with urban population of 20,000 or more, adjacent to metro area	4	1.01	220,595	5.76
5. Non-metro with urban population of 20,000 or more; not adjacent to metro area	2	0.51	175,457	4.58
6. Non-metro with urban population of 2,500 to 19,999, adjacent to metro area	6	1.52	157,993	4.12
7. Non-metro with urban population of 2,500 to 19,999, not adjacent to metro area	3	0.76	79,563	2.08
8. Non-metro with completely rural or less than 2,500 urban population; adjacent to a metro area	0	0	0	0
9. Non-metro with completely rural or less than 2,500 urban population; not adjacent to a metro area	0	0	19,530	0.51

psychologists practiced outside of the state (one each in Arizona, California, Utah, Virginia, and Washington). Of the 26 psychologists who expressed agreement or strong agreement that they would pursue the training and become a prescribing psychologist, the vast majority (85.0%) were currently practicing in metropolitan areas. Only two psychologists who might become prescribers were currently practicing in non-metro counties, another was practicing out of state

and one did not provide information about his/her place of primary practice. Non-metro Oregon psychologists ($n = 2$; 14.3%) were no more likely than urban psychologists ($n = 22$; 7.3%) to express interest in becoming a prescriber, $\chi^2(1, n = 316) = .93$, $p = 0.33$.

As shown in Table 1, Oregon psychologists' views on scope expansion demonstrated division. While a large minority was in favor (10.9% unconditionally in favor; 32.1% generally in favor), nearly one-third of the sample was opposed (6.4% unconditionally opposed; 25.2% generally opposed) and one-quarter were undecided. As shown in Table 4, however, few psychologists reported interest in pursuing training (14.9%) and/or becoming prescribers (6.7%).

To examine whether general attitudes and desire to pursue training varied by degree, we conducted a series of chi-square and independent samples t tests. Although relatively more psychologists holding a PsyD (50%) versus PhD (39%) supported expanding scope of practice, this difference was not significant, χ^2 (2, $n = 387) = 3.57$, $p > .05$. A greater number of PsyD- versus PhD-trained psychologists expressed interest in pursuing training (20% vs. 12%), χ^2 (2, $n = 389) = 7.74$, $p < .05$, and becoming a prescriber (11% vs. 4%), χ^2 (2, $n = 382) = 8.92$, $p < .05$. Although general attitudes and the desire to become a prescriber did not significantly vary according to whether the participant reported a science background, only a limited number of psychologists ($n = 34$; 9%) reported having a science background. Only 1 of the 34 expressed an interest in becoming a prescriber. Although number of years in practice was not significantly related to general attitudes toward expanding the scope of practice to include RxP ($r = .08$), it was negatively associated with interest in pursuing training ($r = -.25$, $p < .001$) and becoming a prescriber ($r = -.14$, $p < .01$). In other words, psychologists who had been practicing longer expressed less interest in pursuing training and becoming a prescriber.

Perceived familiarity and knowledge items revealed a lack of awareness of APA historical guidelines regarding training qualifications to pursue RxP. The majority of respondents were unfamiliar with either the DoD PDP or APA training models (see Table 4). In terms of actual knowledge, only 6.3% knew which three states/territories currently have prescriptive authority, only 4.3% were knowledgeable of the three prerequisites to enter an APA psychopharmacology training program, and only 7.3% reported the correct number of contact hours that APA recommends.

In the context of moderate support for scope expansion, few psychologists (7.6%) expressed a willingness to involve themselves in legislative activity. Furthermore, survey responses often revealed conflicting attitudes regarding appropriate training models and legislative efforts. For example, although many psychologists agreed that an RxP training model should resemble a medical training model (46%) and psychologists should receive the same amount of training as other non-physician prescribers (69.2%), a minority (22%) agreed that

Table 4

Interest in Training, Prescribing, and Knowledge of Training Models

Item	*M*	*SD*	Strongly disagree	Disagree	Neither	Agree	Strongly agree
I am interested in completing the appropriate training, as recommended by the APA, for prescribing privileges.	2.09	1.17	40%	30.6%	14.5%	10.1%	4.8%
I plan to obtain the necessary training *and* plan to prescribe medication	1.87	1.02	46.9%	29.1%	17.3%	3.9%	2.8%
I am familiar with the training model of the DoD PDP	2.23	1.13	31.3%	35.6%	14.8%	15.5%	2.8%
I am familiar with the APA training model for psychologist prescription privileges	2.36	1.10	24.9%	35.7%	19.8%	17.5%	2.1%

Note. These items were rated on a 5-point scale from 1 = *strongly disagree* to 5 = *strongly agree*.
APA = American Psychological Association; DoD PDP = Department of Defense Psychopharmacology Demonstration Project.

psychologists should pursue RxP through existing licensure options. Also perplexing are attitudes reflecting a desire to better understand the issue through further research on RxP (65.8%), but a general reluctance to postpone legislative efforts until evaluation data from prescribing states are available (17%; see Table 2).

Additional attitude items that reflected common arguments for and against RxP are presented in Table 2. The most persuasive arguments for expanding the scope of practice to include RxP centered on improving access and enhancing treatment of patients. Concerns about increased professional costs (e.g., malpractice rates, education costs, identity threats) and an overemphasis on biological factors were among the most compelling arguments against extending prescription privileges to psychologists.

Participants randomly assigned to the education group showed significant gains in their knowledge across all domains; however, their opinions shifted only in these specific areas leaving their general stance on the issue unchanged. Furthermore, attitudes were still, on average, fairly neutral (see Table 5).

Discussion

Improved Access?

Proponents in the state and national efforts to gain prescription privileges argue that mental health needs are currently not adequately met because most patients lack access to psychiatric care and/or most are prescribed psychotropic medications by general practitioners with little mental health training. They argue that this is particularly problematic for mental health consumers living in rural areas. However, the current study adds to a growing evidence base that seriously calls into question the argument of improved access, especially for rural consumers. Consistent with prior studies (Baird, 2007; Campbell et al., 2006), the vast majority of psychologists sampled practiced in metropolitan areas and those practicing in non-metro areas were no more likely than urban psychologists to express an interest in pursuing prescriptive authority. Additionally, few Oregon psychologists expressed an interest in pursuing training to become prescribers; in fact, results support prior survey results of both Oregon (Campbell et al., 2006) and Illinois (Baird, 2007) psychologists in suggesting that few have an interest in pursuing training and even fewer plan to prescribe. Strong proponents of RxP themselves acknowledge that ". . . among practitioners, the notion of prescriptive authority is not universally embraced, and indeed only a minority of practitioners has evinced interest in seeking the ability to prescribe" (Fox et al., 2009, p. 257). With so few psychologists interested in pursuing training and demographic data which demonstrate similar distribution patterns for psychologists and

Table 5

Changes in Attitudes and Knowledge for Education Condition

Item	Pre-test		Post-test				
	M	*SD*	*M*	*SD*	*t*	*df*	Effect size
Expand scope to include RxP	2.91	1.09	2.90	1.10	0.13	171	.01
Benefits outweigh costs	1.86	.81	1.79	.77	2.05	173	.16
Plan to pursue training	2.03	1.12	2.06	1.15	−.45	172	−.03
Plan to pursue training *and* prescribe	1.81	.92	1.83	.98	−.37	167	−.03
Worry about legislative costs	2.58	1.02	2.92	1.08	−5.26***	173	−.40
Improving access	3.65	.85	3.13	.89	10.95***	171	.83
Contact state representative	2.05	1.06	2.05	1.02	−.14	173	−.01
APA should pursue further research	3.56	.07	3.44	1.12	1.52	173	.12
Difficulty in deciding training method	2.92	.94	3.11	.97	−2.71**	168	−.21
Increase education costs	3.74	.85	3.74	.84	.10	169	.01
Issue of economic survivability	2.50	.88	2.57	.91	−1.26	167	−.10
Familiarity with DoD PDP	2.07	1.09	2.82	1.06	−8.12***	167	−.63
Familiarity with APA RxP training	2.21	1.05	3.19	1.00	−10.30***	165	−.80
Current states/territories	.68	.90	2.76	.65	−27.15***	171	2.07
Minimum contact hours	.05	.22	.10	.30	−2.16*	171	−.17

Note. All but the last two items were rated on a 5-point scale from 1 = *strongly disagree* to 5 = *strongly agree*. The mean for current states/territories represents the average number correct (out of a possible three) and the last item represents the average number of participants (5% at pre-test and 10% at post-test) who answered between 300 and 500 hours.
APA = American Psychological Association; DoD PDP = Department of Defense Psychopharmacology Demonstration Project; RxP = prescriptive authority.
*$p < .05$. **$p < .01$. *** $p < .001$.

psychiatrists, RxP proponents' claims of improved access seem to be lacking empirical support.

Training, Background, and Preparation

Although a major argument proposed in favor of prescription privileges is that psychologists are already safely and effectively prescribing, there is little evidence to support this assumption. First, fewer than one-third of respondents agreed that RxP is a natural progression of the profession as they are already functionally prescribing. Second, although outspoken proponents suggest that prescribing psychologists are meeting the needs in underserved areas, including the military; upon closer examination, the numbers served are negligible. For example, Elaine Levine, Director of Training for the psychopharmacology training program in New Mexico stated that "about 70 psychologists in Louisiana can prescribe, and 100 in the military" (Rettner, 2012, "Prescribing Benefits," para. 7). Although the number of medical psychologists in Louisiana is accurate (currently 82; 33 in New Mexico; none in Guam or Illinois), the number of military prescribers is clearly overstated. Deborah Baker, Director of Prescriptive Authority of American Psychological Association, stated, "I don't know exactly how many psychologists—either active-duty military or civilian contractors—are currently prescribing at U.S. military installations as there is not a mechanism for tracking such data as there is at the state-level" (personal communication, June 8, 2011). Given that the APA does not track this information, inquiries revealed a much smaller number. According to P. W. Chiarelli, General U.S. Army, "only three Army psychologists currently have prescription authority" (personal communication, March 1, 2011). Similarly, C. B. Green, Lieutenant General and Surgeon General of the Air Force reported that there are three prescribing psychologists in the Air Force (personal communication, March 28, 2011). Although it is unknown how many psychologists are prescribing in the other branches of the military, the total numbers are surely less than reported by Levine. Third, although initial calls for RxP suggested that "retraining of practicing psychologists for prescription privileges would require careful selection criteria, focusing on those psychologists with the necessary science background" (Smyer et al., 1993, p. 400), there are currently no safeguards in place to ensure that psychologists who pursue post-doctoral training have any prerequisite coursework in the sciences. Similarly, legislative bills simply require the Master's of Science in Clinical Psychopharmacology ignoring the fact that the strong science foundation is not used in selecting appropriate candidates for admission. In fact, in Oregon when Senator Alan Bates, a member of the House Health Care Committee, suggested developing a Physician's Assistant track, proponents were uninterested, presumably because so few Oregon psychologists would have the necessary science coursework in order to be eligible for such programs. For

example, in our random sample of Oregon psychologists, few majored or minored in the sciences and only one with a biology background in college expressed an interest in pursuing RxP.

Although psychologists working to pass RxP legislation seem relatively unconcerned about adequate preparation and training, psychologists surveyed in the current and past studies (Baird, 2007) overwhelmingly support the notion that prescribing psychologists should receive the same amount of training as other non-physician prescribers. Even though less than half of the psychologists surveyed indicated that RxP training should resemble a medical training model, there is broad consensus for legitimate training. This stands in stark contrast to training program materials and champions of RxP who continue to advocate for efficiency in training and lowered costs at the expense of shrinking rigor. For example, in a syllabus for a course taught at New Mexico State University titled "A Systemic View of Drug Groups for Treating Psychological Disorders," it is acknowledged that this truncated schedule may shape course coverage of material: "We will cover as many drug classes as we can in the time allotted" (Hoffman, 2011). Similarly, at the 2013 APA convention in Honolulu, Beth Rom-Rymer, a leader in the RxP movement in Illinois, along with Michelle Nealon-Woods, discussed a model pre-doctoral joint degree program that would allow students to pursue their PsyD simultaneously with the MS in Clinical Psychopharmacology. Despite the fact that the APA's (2009) own guidelines suggest that no more than 20% of the psychopharmacology training can be accrued pre-doctorally, they vigorously defended the benefit of such a program which would allow interested students to more efficiently complete training. In fact, at the APA 2013 convention, Rom-Rymer acknowledged that the current Illinois legislative bill purposefully did not require that interested psychologists graduate from an accredited program, nor complete the psychopharmacology training post-doctorally. At a time when respected psychologists (Baker, McFall, & Shoham, 2009) have expressed concern about the quality of pre-doctoral training to the point of establishing new accreditation standards, this joint degree program proposal seems not only to heighten concerns about RxP training, but also raises questions about compromised social science training. Interestingly, the 2014 bill that passed both chambers and was recently signed by the Governor of Illinois bears little resemblance to earlier versions of bills proposed over a 12-year period in that state or to the New Mexico or Louisiana prescribing laws. Prescribing psychology training requirements in Illinois resemble those proposed for physician's assistants, including prerequisite science education (i.e., 1 year of full-time undergraduate coursework in the basic sciences), more than 3 years of graduate-level study—six semesters of 9 hours plus a seventh semester of 6 hours, and a 14-month full-time practicum or 36 semester hours, whichever takes longer. Once training is complete, the prescribing psychologists in Illinois will be allowed to prescribe in a limited fashion (i.e., collaborative agreement with a physician;

only for patients between the ages of 18 and 65 who are not pregnant or seriously ill; limited formulary which will *not* include benzodiazepines, any Schedule II medications, and only limited Schedule III–V controlled substances that can be prescribed). Future research should examine prescribing patterns and patient outcomes across states with these quite different levels of training.

Fighting a Turf Battle or Internal Division and Disinterest?

The current results reflected more division than in prior recent surveys, with relatively more equal numbers of psychologists supporting (43%), opposing (32%), or reporting being undecided (25%) in their views about prescription privileges for psychologists. Whether this reflects a shift in support consistent with earlier survey data (Chatel et al., 1993; Evans & Murphy, 1997) or a pattern unique to Oregon psychologists is unclear. However, consistent with past research (Baird, 2007; Campbell et al., 2006), the support is relatively shallow with fewer than 15% expressing interest in pursuing the training and even fewer planning to pursue training and becoming prescribers (7%). In the context of survey data collected from Pennsylvania psychologists between 1997 and 2011 that indicated fairly broad support for RxP but continuous low prioritization of RxP for legislative action (Knapp & Bowers, 1997; Knapp et al., 2013), the current data similarly signal a lack of enthusiasm with few Oregon psychologists showing interest in pursuing the training to become a prescriber and similarly low numbers expressing a willingness to be involved in legislative efforts (7%). Again, this underwhelming commitment and interest are not consistent with a policy shift that would significantly impact access to psychiatric care.

Which Arguments are Persuasive? What Do Psychologists Know? Does Education Matter?

Arguments in favor of prescription privileges garnering the most support among psychologists related to perceptions of improved access and treatment enhancement. In contrast, the arguments that created the most concern about RxP involved professional issues. Other arguments failed to be compelling or were met with mixed responses. These views underscore the complexity and discord in beliefs toward prescription privileges. When combined with findings suggesting low levels of RxP knowledge, little evidence that RxP will improve access, and increased recognition that this is not the solution to meet unmet psychiatric needs when presented with data about current prescribers, the results highlight the need for more education that will help psychologists more fully understand the issues involved with RxP.

Prior studies that surveyed psychologists regarding their views of scope expansion appear to assume that participants' attitudes are informed by a clear

understanding of the issue. The current findings call this assumption into question with nearly two-thirds of the sample reporting they were not familiar with the DoD PDP or the APA training model. These numbers suggest even less knowledge than in the only other published study of psychologists to inquire about familiarity with RxP training (Baird, 2007). Knowledge of which states currently allow psychologists to prescribe was even more limited than in an unpublished national survey of doctoral students (6% vs. 22%) conducted by Simpson and Kluck (2007). Similarly, responses indicated that fewer than 10% of psychologists in the current study and students in an unpublished prior study (Simpson & Kluck, 2007) were knowledgeable about the requirements to obtain RxP. Such low levels of basic knowledge of RxP seem to suggest caution in arguing that "support" for the initiative should signal investment of resources to lobby for RxP as this support is likely qualified by inaccurate impressions about what training should entail. In fact, some data would suggest that most might be assuming more rigorous training than is currently recommended (e.g., nearly one-half agreed that RxP training should resemble a medical model and nearly three-quarters believed that training should be equivalent to other non-physician prescribers).

Consistent with past research (Baird, 2007; Knapp et al., 2013; Simpson & Kluck, 2007), the current findings highlight a pattern of lack of knowledge, low interest in advocacy, and conflicting attitudes about RxP. Although there was broad agreement that training should be commensurate with other prescribers, less than one-quarter agreed that psychologists should use existing pathways toward licensure. Similarly, although nearly two-thirds expressed a desire to understand the issue through more research, less than one-fifth agreed that RxP initiatives should wait until evaluation data from current prescribers are available. This mixed picture suggests the need to provide professionals and students with basic information about RxP. Whether that knowledge will translate into changed views is one of the unique questions addressed in the current study.

Although participants assigned to the education condition evidenced significant increases in knowledge, changes in attitudes were circumscribed to those specific areas that were targeted. These data, which suggest limited and focused change, stand in contrast to prior exploratory work (Pimental et al., 1997), which found that education led to broad-scale changes in support of prescriptive authority. Discrepancies may be explained by a variety of factors. First, we recruited a large and random sample of Oregon psychologists whereas Pimental et al. employed a small, convenience sample of attendees at the IPA convention. Second, they used a pre-post design that also included a 3-year retrospective report whereas the current study randomly assigned participants to the education condition in an attempt to measure immediate changes in knowledge and attitudes after exposure to information and data. A final difference lies in the nature of the "education" provided.

Whereas the current study provided objective facts about training, legislative history, and demographic information about where current prescribing psychologists were working, the session agenda at the IPA convention included historical reviews, task force updates, and a review of proposed training models by major proponents of the RxP movement. They argued that "perhaps psychologists who are initially ambivalent but curious learn more about the prescriptive authority option and become more supportive when they are fully informed" (p. 126). In point of fact, given emerging data which call into question the degree to which most psychologists are informed about this issue, the self-selected nature of the sample, the sources of prior information (nearly exclusively IPA and APA both of which are pro-RxP), and the fact that only experts from one side of the debate presented information, it is likely more accurate to propose that individuals were moved to reaffirm their position to align with existing cultural values (Kahan, 2010).

Kahan defines "cultural cognition" as the influence of cultural values on information processing such that individuals tend to reject or emphasize information based on the extent to which it threatens or affirms their cultural values (Kahan, 2010). Kahan suggests that "on issues ranging from climate change to gun control, from synthetic biology to counter-terrorism, they take their cue about what they should feel, and hence believe, from the cheers and boos of the home crowd. But unlike sports fans watching a game, citizens who hold opposing cultural outlooks are in fact rooting for the same outcome: the health, safety and economic well-being of their society" (p. 297).

In fact, in a series of pioneering studies Kahan et al. have demonstrated that the value-based context is more critical in understanding how attitudes are changed or affirmed than the evidence provided. For example, in order to understand polarized opinion regarding mandatory Human papillomavirus (HPV) vaccination of young girls, they found that participants became even more intensely opposed to mandatory vaccination when they were exposed to experts who were perceived as hierarchical/individualistic criticizing the Centers for Disease Control's (CDC) recommendation. Similarly, participants became even more supportive of this policy when they were presented with an expert perceived as egalitarian who defended the CDC's stance that the vaccine is safe. In contrast, when they inverted the expert-argument pairings (support by the hierarchical expert and opposition by the egalitarian one), positions shifted and polarization dissipated (Kahan, Braman, Cohen, Gastil, & Slovic, 2010). In the current study, we purposefully presented data on training, legislative history, and demographic patterns of prescribing psychologists in a way that did not attempt to persuade or assert our position. As anecdotal evidence of support, we had an equal number of complaints by participants that we were biased in favor or in opposition, with most accepting our stated goal of wanting to simply understand the psychologists' views and knowledge. In this belief-neutral context, we saw circumscribed

change in views including: increased difficulty in deciding about training methods, increased worry about legislative costs, and decreased belief that RxP would improve access to psychiatric care. That this gained knowledge did not lead to change in more general views about the scope of practice is perhaps not surprising, given the range of social cognitive factors that operate in affecting attitude change (Cacioppo, Petty, & Crites, 1994) and the culture within the APA which consistently disseminates pro-RxP information and discourages opposition and debate. In fact, this background culture may explain how the one-time provision of information failed to affect broader attitudinal change in the face of abundant messages within the profession promoting RxP. In future work, paying attention to the role that cultural cognition might play in this debate seems important. There are clearly two camps that present polarized messages (pro vs. con), are perceived as belonging to different cultural groups (scientists vs. practitioners), and rarely engage in open debate with both sides commenting on the available evidence and information.

In fact, in an effort to educate professionals on this issue in a way that promotes open-minded consideration of the current scientific evidence, the following advice by Kahan et al. should be heeded: (1) include a diverse range of experts who disseminate scientific evidence so that individuals will be more apt to consider a range of evidence and (2) carefully consider the ways in which these diverse experts' language may polarize if they threaten and affirm diverse audience values. Future work should more thoroughly investigate the nature of the cultural values (i.e., professional roles—practitioner vs. scientist, educational degree—PsyD vs. PhD, other factors—e.g., luddite vs. cutting-edge or evolving) that may fuel divergent thinking on this issue and the degree to which a shift in presentation of scientific information may make people more open-minded in their consideration of the data.

Summary and Conclusion

In contrast to ardent supporters who argue that their "data should provide reassurance to psychologists spearheading legislative initiatives" because of high approval ratings (Sammons et al., 2000, p. 608), our data suggest disagreement among a group of professionals who are not particularly well-informed, nor willing to undergo training to become a prescriber. Our relatively high response rate in comparison with past surveys (e.g., 21% in Sammons et al.) may explain the greater discrepancy in expressed views, given that a broader range of views were surveyed. Overall, these findings suggest that legislative efforts should be mindful of the controversy within the field and the low numbers of professionals interested in pursuing prescription privileges which undercut arguments that granting psychologists prescriptive authority will lead to improved access and enhanced patient care.

Another strength of the current project lies in its focus on knowledge and exploration of whether education can change both knowledge and attitudes among member of this professional group. In light of the findings, which suggest that psychologists are relatively uninformed (and most are disinterested in the issue), divided in their views, and change specific attitudes when provided with unbiased information by a neutral source, it is surprising that some proponents are overly dismissive of those opposed to RxP (e.g., characterizing them as "fringe" to legislators). For example, Sammons et al. (2000) have suggested "that the usefulness of organized debates or other public forums devoted to dissecting the issue has become limited" and "that to wait until all have been converted serves no purpose but results in immobility" (p. 608). In point of fact, when considering the amount of time, money, and effort invested in the RxP movement, now is the time to carefully evaluate those who have been prescribing and to create open dialogue that will allow professionals to move away from the two camps who hold opposing cultural viewpoints and instead recognize that they need to evaluate existing evidence toward understanding how best to achieve the shared desired outcome: improve mental health outcomes for those most in need.

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Appendix A

Information regarding demographic distribution patterns for prescribing psychologists in and New Mexico that were presented to Oregon Psychologists who were assigned to the education condition.

Distribution of psychologists authorized to prescribe medications in Louisiana

Rural continuum codes	Louisiana	Percentage	Populace	Percentage
1 = County in metro area with 1 million population or more	6	9.7%	1,316,510	29.5%
2 = County in metro area of 250,000 to 1 million	24	38.7%	1,081,938	24.2%
3 = County in metro area with fewer than 250,000	20	32.3%	942,219	21.1%
4 = Non-metro county with 20,000 or more, adjacent to metro area	2	3.2%	522,762	11.7%
5 = Non-metro county with 20,000 or more, not adjacent to metro area	0	0%	0	0%
6 = Non-metro county with population 2,500–19,999, adjacent to metro area	1	1.6%	483,625	10.8%
7 = Non-metro county with population 2,500–19,999, not adjacent to metro area	0	0%	81,510	1.8%
8 = Non-metro county completely rural or less than 2,500, adjacent to metro area	0	0%	10,560	0.2%
9 = Non-metro county completely rural or less than 2,500, not adjacent to metro area	0	0%	29,852	0.7%
Out of state*	9**	14.5%		
Total	62		4,468,976	

*Out of state means they are licensed in Louisiana but are no longer practicing in the state.

**One medical psychologist in Louisiana is "out of state" but also licensed as a prescriber in New Mexico; this psychologists' information regarding practice can be found in the New Mexico data; thus, there are actually 61 medical psychologists licensed in Louisiana.

Distribution of psychologists authorized to prescribe medications in New Mexico

Rural continuum codes	New Mexico	Percentage	Populace	Percentage
1 = County in metro area with 1 million population or more	0	0%	0	0%
2 = County in metro area of 250,000 to 1 million	9	37.5%	729,649	40.2%
3 = County in metro area with fewer than 250,000	5	20.8%	417,775	23.0%
4 = Non-metro county with 20,000 or more, adjacent to metro area	0	0%	137,096	7.6%
5 = Non-metro county with 20,000 or more, not adjacent to metro area	2	8.3%	213,595	11.8%
6 = Non-metro county with population 2,500–19,999, adjacent to metro area	0	0%	171,618	9.5%
7 = Non-metro county with population 2,500–19,999, not adjacent to metro area	2	8.3%	133,366	7.4%
8 = Non-metro county completely rural or less than 2,500, adjacent to metro area	0	0%	5,180	0.3%
9 = Non-metro county completely rural or less than 2,500, not adjacent to metro area	1	4.2%	3,543	0.2%
Out of state*	5	20.8%		
Total	24**		1,814,872	

*Out of state means they are licensed in New Mexico but are no longer practicing in the state.

**Two New Mexico psychologists have two practices in different areas (one in 2 and 3; the other in 7 and 9); thus the actual number of New Mexico psychologists is actually 22.

Combined Distribution of Psychologists Authorized to Prescribe Medications in New Mexico, Louisiana, and Guam

*Note: There are no prescribing psychologists practicing in Guam despite legislation being passed granting prescriptive authority to psychologists in 1999.

Appendix B

Information presented to Oregon psychologists who were assigned to the education condition regarding post-doctoral training

Post-Doctoral Training in Clinical Psychopharmacology

Criteria for admission:

1. A doctoral degree in psychology,
2. current licensure as a psychologist, and
3. practice as a health services provider as defined by state law, where applicable, or as defined by APA

Average Program

The table 4 from McGrath (2010) presents two of the approximately ten training programs offering training in psychopharmacology for prescriptive authority that is purportedly based on the APA training model. McGrath compares these two programs to the Department of Defense's (DoD) Psychopharmacology Demonstration Project (PDP). An average cost, in terms of tuition and fees for these 2-year programs are also provided. [Note that table 4 from McGrath (2010) was used with permission and presented directly to education participants].

Average cost: $15,040

In addition, *supervised clinical hours* are required in order to attain competency in the following areas. Although the exact number of patient hours needed to achieve mastery of clinical competencies may vary across individuals, the clinical experience is expected to be substantial and in past models has included a minimum of 100 patients seen for a psychopharmacology examination.

APA Recommended Postdoctoral Education and Training Program in Psychopharmacology for Prescriptive Authority (Approved by APA Council of Representatives, 2009)

1. Physical exam and mental status
   Knowledge and execution of elements and sequence of both comprehensive and focused physical examination and mental status evaluation, proper use of instruments used in physical examination (e.g., stethoscope, blood pressure measurement devices, etc.), and scope of knowledge gained from physical examination and mental status examination recognizing variation associated with developmental stage and diversity.
2. Review of systems
   Knowledge and ability to systematically describe the process of integrating information learned from patient reports, signs, symptoms, and a review

of each of the major body systems recognizing normal developmental variations.

3. Medical history interview and documentation
   Ability to systematically conduct a patient or parent/caregiver clinical interview producing a patient's medical, surgical, and psychiatric (if any) history and medication history in cultural context as well as a family medical and psychiatric history and to communicate the findings in written and verbal form.
4. Assessment: indications and interpretation
   Ability to order and interpret appropriate tests (e.g., psychometric, laboratory and radiological) for the purpose of making a differential diagnosis and for monitoring therapeutic and adverse effects of treatment.
5. Differential diagnosis
   Use of appropriate processes, including established diagnostic criteria (e.g., ICD-9, DSM-IV), to determine primary and alternate diagnoses.
6. Integrated treatment planning
   Ability to identify and select, using all available data, the most appropriate treatment alternatives, including medication, psychosocial, and combined treatments and to sequence treatment within the larger biopsychosocial context.
7. Consultation and collaboration
   Understanding of the parameters of the role of the prescribing psychologist or medical psychologist and working with other professionals in an advisory or collaborative manner to effect treatment of a patient.
8. Treatment management
   Application, monitoring, and modification, as needed, of treatments and the writing of valid and complete prescriptions.

Appendix C

Information regarding legislative history that was provided to participants in the education condition

Matrix Showing History of Legislative Efforts toward Prescriptive Authority for Psychologists since 1995

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Alaska					X	X										
Arizona								^	^						X	X
California	X	X	X	X		X							X	X		
Connecticut							X				X	X				
Florida			X	X					X							
Georgia				X	X	X	X	X	X	X	C	X	X			
Guam					@											
Hawaii		X	X	X			X	X	X		Z	J	B	X	C	J
Illinois					X	X	X	X	X	X	X		X		X	X
Louisiana			Z		Y		X			@						
Maine									^	X						
Missouri		X	X	Z	X	X	X				X	X	X	Z	X	
Mississippi													X	X	X	X
Montana	X												Z		X	
Nebraska								~								
New Hampshire									X	X	X**					

Appendix C

continued

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
New Mexico							H	@			J					
North Dakota															X	
Oklahoma										S						
Oregon									X		X		X		C	B
Tennessee			X	X	X	X	X	X	X	X	C	X	X	X	X	
Texas							X		X						X	
Wisconsin	~														A	
Wyoming									Z		X					
Virgin Islands													X			A

A = Bill in current legislative session.
X = Legislation introduced; died in committee.
J = Legislation passed House; died in Senate committee.
H = Legislation passed House; died on the Senate floor.
S = Legislation passed Senate; died in House committee.
B = Legislation passed House; passed Senate; vetoed by Governor.
Z = Legislation approved by one committee; bill either died or defeated on floor.
Y = Legislation approved by committees in both chambers; never considered on either floor.
C = Legislation carryover to next regular legislative session.
∧ = Legislative proposal presented to interim committee; eventually withdrawn.
~ = Legislative proposal was "floated" by a state agency; eventually halted.
@ = Legislation passed and signed by the Governor.
** = Precursor bill.
Source: American Psychiatric Association.