



Research Training and Education at the Crossroads

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Research training in psychiatry for residents, fellows, and medical students has been a matter of concern and discussion for decades. Over a quarter of a century ago, Rieder [1] pondered the results of a small survey of program directors from prominent academic centers showing lack of interest in research training during residency. Rieder felt that training in research was not seen as a necessity or even priority among departments that produced future psychiatric faculty. Rieder concluded possible contributing factors included the large amount of clinical work and pressure to do clinical electives to obtain future employment, anti-research attitudes of clinical faculty, lack of research faculty, and failure of the chair or program director to encourage residents to pursue research electives.

Two other influential publications have expressed similar concerns [2, 3]. In 2002, a group of prominent researchers [2] acknowledged that “clinical researchers represent an endangered species” (p. 657) and that research tracks in residencies are probably not well utilized. They outlined six challenges facing recruitment and retention of mental health physician researchers: early identification and recruitment at the undergraduate and medical student level, recruitment of more diverse groups of trainees, safety nets for attrition, strategies to promote successful competition for K awards, definition of appropriate roles and career development opportunities in multisite clinical trials, and strategies for mentoring “cost” (e.g., providing administrative supplements for mentoring).

Then, in 2003, the Institute of Medicine (IOM) released its report on Research Training in Psychiatry Residency [3], which was also summarized in *Academic Psychiatry* [4].

The report emphasized that residency is part of a continuum of training and issued several recommendations for training and for regulatory (e.g., for the Residency Review Committee), institutional (e.g., for academic departments), and personal (e.g., financial incentives for research trainees) factors. Some of the recommendations included optional research experience, patient-oriented research literacy, and mandatory research didactics in residency; requirement of research literacy as a core competency; rewarding patient-oriented research faculty involvement in residency training; recruitment of minority faculty in multiple disciplines to serve as role models; increasing funding for research training; and improvement of conditions for young researchers. Interestingly, at one point the report raised an interesting issue: “Although there is evidence supporting the hypothesis that an increase in psychiatrist-researchers would benefit the nation’s mental health, this contention has not been well substantiated in a systematic and scientific way” ([3], p. 17).

Although many other articles on research training have appeared since the IOM report, their review is beyond the scope and purpose of this editorial. Nevertheless, the outlined challenges of research training in psychiatry have not changed much over the years.

Reflections on Research Training in This Issue

From time to time the journal spontaneously receives a grouping of articles sharing a similar topic or focus, which may provide a snapshot of the existing state of affairs in a specific

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area. In the August 2022 issue of *Academic Psychiatry*, five reports [5–9] and a literary resources column [10] reflect on issues related to research training at present.

In their educational case report, Forehand and colleagues [5] describe a 10-session curriculum on teaching research literacy to psychiatric residents using a problem-based learning (PBL) approach. They noted that teaching research literacy via the traditional style of combined didactics and assigned reading may be difficult to digest and not sufficient for maximization of learning. Thus, they developed 10 weekly PBL sessions that use cases “to illustrate core research competencies and promote evidence-based decision-making.” Eight of these sessions target psychopharmacology and psychotherapy, addressing issues such as formalizing clinical and ethical observations, performing chart review, summarizing population data, assessing outcomes, testing hypotheses, comparing conditions in psychotherapy research, reviewing randomized controlled trials, and implementing research results. The last two sessions focus on concepts in which trainees have a special interest or which they have not fully grasped.

Each session has an assigned statistical skill (e.g., types of error, power randomization, effect size) and what the authors call “artifacts” (e.g., published chart review, internal grant application, published methods paper) and addresses a specific research competency (e.g., literature review, statistical analysis, methodology, scholarly writing). Residents have specific assignments for each session (e.g., write an abstract and case report, create a histogram). Although only a small number of residents evaluated this course, the results were quite positive [5]. This curriculum appears to be an interesting and useful model that could be adapted by other training programs. However, not every training program has such robust faculty resources as in this institution, where there are many accomplished and well-published faculty with expertise in mentoring.

The letter by Masaki and colleagues [6] emphasizes the shortage of physicians, especially researchers from groups underrepresented in medicine (URiM), and the need to recruit and train URiM physicians. Researchers at Massachusetts General and McLean Hospital created an 8-week summer research and mentorship program for URiM medical students interested in psychiatry and academia. Students were paired with a research mentor and expected to meet weekly via video call and join lab meetings. Students were also invited to a monthly educational dinner associated with the psychiatry residency research program and paired with a URiM resident mentor for additional weekly and monthly meetings “to expand their peer network.” This program only included three students due to a limited number of available mentors and funding (each student received a \$4000 stipend). This innovative program appears to be an excellent vehicle for involving URiM medical students in research, but again, its general usefulness is limited, as probably only those institutions with a

wealth of expertise and funding would be able to implement it. It would be interesting to see the follow-up and long-term outcome of programs such as this one.

The brief report by Hantke and colleagues [7] examined, via a survey, challenges faced by 62 M.D. and Ph.D. postdoctoral fellows and 27 local fellowship center directors within the Veterans Affairs Advanced Fellowship in Mental Illness Research and Treatment program during the COVID-19 pandemic. All fellows reported a significant level of disruption; half worked entirely offsite during the pandemic. Fellows were able to continue in their projects using ingenuity, for example, converting data collection to virtual modalities, working with archival data, and focusing on manuscript writing. The decrease of productivity was relatively small. Nevertheless, the long-term impact of the pandemic on fellows’ professional trajectory remains unknown. This study illustrates just one facet of the enormous disruption caused by COVID-19, with its unknown long-term consequences.

Two commentaries discuss areas important to research education. Cozza and Shankman [8] propose introducing the Research Domain Criteria (RDoC) into psychiatry resident training “to improve understanding of psychopathological mechanisms.” The RDoC were developed at the National Institute of Mental Health (NIMH) as a conceptual approach to psychopathology, “as transdiagnostic dimensions of function/behavior that range from functional to dysfunctional.” The RDoC synthesize dimensionality of psychopathology, genetics, biomarkers, and laboratory methods. As Cozza and Shankman [8] note, they are definitely not a clinically useful nomenclature and are open to modification and further development. They believe this is a very important concept that should be introduced into residency education and propose implementation of RDoC and their possible use in four steps. They also provide case examples to illustrate an approach to RDoC and its benefits in the future. They acknowledge that implementation will require not only experts to teach this concept in the classroom but also significant supervisor development to facilitate discussions of their use in clinical practice.

The second commentary in this issue, by Arfken and MacKenzie [9], is a useful summary of methodological and statistical issues that negatively impact journal editorial review of many articles submitted to *Academic Psychiatry*. These issues include the objectives of the study and the variables analyzed (e.g., vague research question or hypothesis); design; sample size and participation rate; missing data and attrition; and analytical approaches (e.g., appropriateness of statistical tests). The authors also discuss the distinction between statistical and clinical or academic significance. This commentary is useful reading for anybody preparing a research project or submission to this and other journals.

Finally, a brief literary resources column by Morreale [10], reviewing the book *The Art of Statistics: How to Learn from*

Data [11], reminds readers that although statistics are important and can be interesting, they are also quite complicated. One realizes, as Arfken and MacKenzie [9] suggest, that it is often best to consult a statistician.

What Is Required and What Psychiatry Educators Should/Could Do

Although the topics presented in the articles on research literacy, areas to teach, and scholarly activity likely reflect what is on the minds of most program directors, the Accreditation Council for Graduate Medical Education (ACGME) requirements related to research are much wider, more specific, and more comprehensive. The ACGME specifically requires the following regarding areas of research literacy, scholarly activity, and research training:

- “Advancement in the residents’ knowledge of the basic principles of scientific inquiry, including how research is designed, conducted, evaluated, explained to patients, and applied to patient care” ([12], p. 19, IV.A.6. [Didactics])
- “The program must demonstrate evidence of scholarly activities consistent with its mission(s) and aims. The program, in partnership with its Sponsoring Institution, must allocate adequate resources to facilitate resident and faculty involvement in scholarly activities” ([12], pp. 31–32, IV.D.1.a,b [Scholarship])
- “The program must provide residents with opportunities for research and development of research skills for residents interested in conducting research in psychiatry or related fields. The program must provide interested residents access to and the opportunity to participate actively in ongoing research under a mentor. All residents must be educated in research literacy and in the concepts and process of evidence-based clinical practice to develop skills in question formulation, information searching, critical appraisal, and medical decision-making” ([12], p. 33, IV.D.3.a,1–3 [Resident Scholarly Activity])

While the ACGME requirements seem reasonable, it actually may be a tall order for many programs to fulfill them. It is important to realize that the ACGME does not require programs to train residents to become researchers but does require programs to train residents in research literacy and scholarship and to provide opportunities for interested residents to conduct research under a mentor. This last requirement may not be realistic, however, for resource-poor programs. Can all resource-poor programs fulfill it? Probably not. Thus, there is a notable discrepancy between what the educational community could achieve and what the research community would like educators to achieve. This discrepancy boils down to three questions: What should be trained and taught? Who

should be doing it? And should all programs and institutions be engaged in this work and to what degree?

A research career is a complicated enterprise not suitable for everybody. Most programs, institutions, and researchers would agree that training researchers cannot be done by all and should be left to those academic departments that have a high research output or a research fellowship, including schools with MD/PhD programs and the NIMH. Talented and interested residents should be given the opportunity to transfer to these institutions (e.g., the NIMH offers research fellowships that begin after the third year of residency [13]). Research training should be well defined by residents’ interests, institutional resources, and mentorship availability. This training could be enhanced and facilitated by multiorganizational training programs, such as the American Psychiatric Association Colloquium for Young Investigators [14], which is a program available to selected residents from all programs that can assist residents in obtaining mentorship outside their institution. As recruitment of talented individuals into research should be done as early as possible, more medical schools should develop research training pipelines [15].

The answer to the questions of what, who, and whether all should be involved in the area of research literacy and scholarship and to what degree is more complicated than one would expect. Ideally, all residents should fulfill the scholarly activity requirements. However, the question remains whether all residency programs can provide solid environments for writing and evaluation expertise.

The issue of research literacy training is also complicated. How should research literacy be defined, what should be included, and how should it be taught? Is the PBL approach, such as outlined by Forehand and colleagues [5], supported by the best evidence for teaching? Do all programs have expertise in teaching all elements of research literacy (e.g., design, data analysis)? Should the newest ideas and findings, such as RDoC (e.g., the commentary by Cozza and Shankman [8]), be included? How much of neuroscience and genetics should be included in research literacy curricula, as Roffman and colleagues [15] noted over 15 years ago, psychiatry residency programs keep increasing neuroscience content in their curricula, but “it remains unclear how this added training will influence clinical work. Reframing current practices, including psychotherapy, into a neuroscientific context may ultimately prove more useful to trainees” (p. 919). Who should determine the content? Should there be a national or local curriculum in research literacy? Who would provide this curriculum and ensure appropriate delivery? Should it be up to individual programs or should graduate medical education offices and designated institutional officials provide help? Should programs with resources and expertise be linked with resource-poor programs virtually or otherwise?

Furthermore, as many small programs do not have the research faculty to accomplish the ACGME requirement, should

regional or online courses be available for those residencies that could participate with others, taught by seasoned researchers with educational expertise? Another opportunity for teaching research literacy is having journal clubs that use the templates which journal reviewers use to evaluate manuscripts, and there a focus on methodology may well be a place residents and fellows can appreciate and critically evaluate the research tools and applications, for better or worse. We believe that this is an area for which various stakeholders (e.g., ACGME, NIMH, American Association of Directors of Psychiatric Residency Training) should get together and provide some guidance to the community.

Research, research training, and research education are complicated enterprises that require periodic evaluation and reflection, such as from the articles in this issue of *Academic Psychiatry* [5–10]. These reflections will help continue sharpening the agenda and goals of the national mental health enterprise and the education of psychiatry trainees.

Declarations

Disclosures On behalf of all authors, the corresponding author states that there is no conflict of interest.

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