Graduate Admissions in Pediatric Psychology: The Importance of Undergraduate Training

Bryan T. Karazsia,1 PHD, and C. Meghan McMurtry,2 PHD
1Department of Psychology, The College of Wooster and 2Department of Psychology, University of Guelph

All correspondence concerning this article should be addressed to Bryan T. Karazsia, Department of Psychology, The College of Wooster, Wooster, OH, 44691, USA. E-mail: bkarazsia@wooster.edu

Received May 31, 2011; revisions received August 1, 2011; accepted August 2, 2011

Objectives To determine the minimum and ideal undergraduate experiences in pediatric psychology expected by graduate faculty; to determine the experiences current trainees gained prior to graduate admission; to compare trainee experiences with faculty expectations. Methods Faculty and current trainees completed surveys. Results Faculty expectations of minimum and ideal undergraduate training were highest for research methods and evaluation, paralleling the highest level of undergraduate training reported by trainees. Research goodness of fit also emerged as a critical admissions factor. Conclusions The results offer empirical evidence for desirable undergraduate training related to pediatric psychology, particularly with respect to research experiences. The findings have implications for prospective trainees, faculty who mentor undergraduates, and graduate faculty serving on admissions committees.

Key words graduate admissions; mentoring; pediatric psychology; undergraduate training.

Introduction

The field of pediatric psychology emerged as a "marriage" between pediatrics and psychology (Kagan, 1965; Wright, 1967). Very early in this union, the founders of the field foresaw the need to develop explicit recommendations regarding training models and competencies (e.g., Wright, 1967). Perhaps influenced strongly by this early vision, several seminal works were devoted to issues regarding training and mentoring of pediatric psychologists. These published recommendations are evidence based, and they span various phases of development, including graduate school, predoctoral internship, and postdoctoral specialization (e.g., La Greca & Hughes, 1999; Mackner, Swift, Heidgerken, Stalets, & Linscheid, 2003; Spirito et al., 2003). Extensive discussion regarding these training levels has ensued (e.g., Drotar, Palermo, & Ievers-Landis, 2003; Madan-Swain & Wallander, 2003; Roberts & Steele, 2003), and descriptions of exemplary training programs are presented in the literature (e.g., Brown, 2003; Drotar, 1998; Roberts & Steele, 2003).

It is often suggested that specialization in pediatric psychology occurs during internship, postdoctoral, and early career experiences (e.g., Spirito et al., 2003). This has led to a literature that is essentially silent on pregraduate level training. Clearly, the clinical experiences required for licensure should occur during graduate-level education. However, an introduction to competencies in pediatric psychology during undergraduate and postbaccalaureate experiences may be quite useful to the field, and there are compelling reasons to consider the importance of undergraduate education in pediatric psychology. First, a "goodness of fit" approach is utilized by many graduate programs during the admissions process. Reflective of this approach, prospective applicants are often encouraged, and perhaps expected, to demonstrate that their previous training has prepared them to learn efficiently in and make unique contributions to a particular graduate program or research laboratory (e.g., Prinstein, n.d.). This notion of "goodness of fit" suggests that applicants are expected to possess not only sound training in the general field...
of psychology, but also a demonstrated interest in the particular training that occurs in a given institution or laboratory. Furthermore, some graduate programs require particular types of coursework or other training to be completed at the undergraduate level for admission (e.g., developmental classes for admission to a child focused program).

Related to this notion of a “goodness of fit” is the increased specialization in pediatric psychology during the graduate school years, including pediatric psychology coursework, practicum experiences, and research opportunities (e.g., Mullins, Hartman, Chaney, Balderson & Hoff, 2003; Roberts & Steele, 2003). This level of training likely reflects the maturation of the field of pediatric psychology as it gains representation in academic training programs. Moreover, postdoctoral training is no longer required in some states to obtain licensure and practice as a clinical psychologist (e.g., Washington, Arizona, Alabama, and Ohio). In Canada, licensure requirements vary by province, but structured clinical postdoctoral fellowships are less common than in the USA; clinicians may simply start a job and complete their supervised practice during their first year, if required. This trend is supported by the Commission on Education and Training Leading to Licensure in Psychology, which recommended that clinical and doctoral-level “psychology graduates be eligible to sit for licensure” following the completion of 2 years of supervised experiences (American Psychological Association, 2001). One of these years includes the predoctoral internship, and the other year can be fulfilled during either postdoctoral or other predoctoral experiences. As such, with the passage of time, an increasing number of Pediatric Psychologists may begin practice without formalized postdoctoral training experiences. With this increasing trend of predoctoral training in pediatric psychology comes a need for students to learn about and be exposed to the field prior to graduate school.

Additionally, several prominent scholars in pediatric psychology have articulated the importance of development prior to graduate school. According to Drotar, Palermo, and Landis (2003, p. 125), “attracting talented students” is an extremely important and challenging endeavor for the field of pediatric psychology, particularly because this specialty is often not represented in undergraduate curricula. This importance was articulated by Roberts (2005), who acknowledged that applicant pools saturated with highly qualified prospects for graduate programs play a key role in the success of graduate training. Indeed, selection of qualified applicants represents one way in which faculty serve as “gate-keepers” to the field of professional psychology (e.g., Vacha-Haase, Davenport, & Kerewsky, 2004).

Despite the importance of undergraduate exposure to pediatric psychology, available literature on training at the undergraduate level is sparse and based primarily on anecdotal reports (e.g., Aylward, Bender, Graves, & Roberts, 2009; Hommel, n.d.). Data do exist regarding general graduate school acceptance rates, mean GPA (grade point average) and GRE (Graduate Record Examination) scores, ordinal rankings of the relative importance of admissions criteria, and trends of these indicators across time (e.g., Norcross, Kohout, & Wicherski, 2003). The American Psychological Association publishes an annual compilation of information, including empirical data, regarding approximately 600 graduate programs in psychology (e.g., American Psychological Association, 2010). However, to the authors’ knowledge, there are no empirically based guidelines specific to the field of pediatric psychology. Students at the undergraduate level may not be exposed to the field of pediatric psychology, and thus the number and diversity of applicants who are well-prepared for specialized training in pediatric psychology may be limited. Moreover, students who do learn and develop an interest in pediatric psychology do not have evidence-based guidelines for gaining acceptance to a relevant graduate training program. As a result, they may not be in a position to maximize their undergraduate education and preparations for graduate work.

The lack of evidence-based guidelines also holds implications for undergraduate educators. At present, such individuals do not have an empirical basis upon which to (a) develop undergraduate coursework in pediatric psychology, (b) develop structured experiences for undergraduates to gain exposure/develop expertise in pediatric psychology research or practice, nor (c) advise students interested in pursuing graduate education in pediatric psychology. Thus, the advice offered to students across institutions is likely not consistent, and in some cases it may not be accurate or fruitful.

In considering the above, the overall purpose of this study was to identify topic areas and training experiences central to preparing students for graduate-level training in pediatric psychology. Three areas of inquiry were pursued. First, what do faculty members at graduate-training institutions with expertise in pediatric psychology look for in applicants to their programs? For example, are there minimum qualifications? What training would an ideal candidate possess? The decision to begin here was based on previous models designed to shape educational experiences of graduate-level students by learning what will be
expected of them when they begin practicing in the field (e.g., Roberts, 2005; Snyder & Elliott, 2005). In the present study, faculty with expertise in pediatric psychology from graduate training programs (preinternship) were asked what they expect of their incoming students.

Second, what training experiences do students who are successful in gaining admission to graduate programs in pediatric psychology acquire prior to graduate school, and third, do those experiences align with what faculty suggest are the most important domains? To answer these questions, current pre- and postdoctoral trainees were asked to reflect on their undergraduate and postbacalaureate training experience. As this study is the first to examine these questions empirically, it is exploratory in nature and no a priori hypotheses were made.

Methods
Participants
To be eligible to participate in the present research, individuals had to meet one of the following inclusion criteria measured by self-report: (a) be a faculty member playing a role in accepting students into a graduate program with a focus on pediatric psychology; or (b) be a graduate student, intern or postdoctoral fellow specializing in pediatric psychology. Participants were recruited primarily through electronic posts to the Society of Pediatric Psychology (SPP) listserv. In addition, “word-of-mouth” and snowball sampling (i.e., participants were asked to share the study link with their colleagues) were utilized. Finally, a faculty member at each of the programs listed in the SPP website graduate program directory was contacted via email with an invitation to participate.

A total of 28 eligible faculty participated in the survey, though given the manner of recruitment, the response rate is unknown. Four cases were deleted due to missing data on more than 50% of the survey. Where data were available, comparisons between cases deleted versus retained were conducted for all demographic data reported below. Participants deleted from analyses reported a mean age (M = 29.75, SD = 2.39) that was older than cases retained, t(91) = 3.01, p < .01, and they were more likely to have already obtained a Master’s degree, \( \chi^2(4) = 10.79, p < .05 \). No other significant differences emerged. Of the 83 participants retained for analyses, 81 (97.6%) were members of SPP. The modal level of training was preinternship doctoral students (n = 33), followed by postdoctoral trainees (n = 25), interns (n = 14), graduate students working on their Master’s degree (n = 10), and students who had completed everything but their dissertation (n = 1). Reports of program descriptions were as follows: 30 (36.1%) clinical child, 27 (32.5%) general clinical, 15 (18.1%) clinical pediatric, and 11 (13.3%) nonresponders. The mean age of trainee respondents was 27.49 years (range: 21–36 years; SD = 2.43), and the majority of trainee participants were female (n = 74; 89.2%). Of note, the gender difference among students differed significantly from that of faculty, \( \chi^2(1) = 50.90, p < .001 \), with a greater proportion of female respondents among trainees. The self-reported undergraduate GPA of the trainee sample was 3.72, which is significantly higher than the reported mean undergraduate GPA of first-year graduate students in psychology doctoral programs (M = 3.37) during the 2003–2004 academic year, t(81) = 7.33, p < .001 (Norcross et al., 2005).

Measures
Two surveys were developed for this study: one for faculty and one for trainees (the complete surveys are available from the authors upon request). In addition to assessing demographic information, both surveys shared response options for degree of training in a given topic area that were adapted from Roberts et al. (1998). The scale ranged from 1 (No Training) to 7 (Substantial Expertise). For each level of training, operational definitions and examples were provided (Table I). The survey included a list of the 12 domains of competency previously identified as central to pediatric psychology (Roberts et al., 1998; Spirito et al., 2003; Table II). In response to each of the 12 domains and using the response options detailed in Table I, faculty were asked to first identify the minimum qualifications that they look for in applicants who would like to pursue graduate training in pediatric psychology. Next, they were asked to identify the qualifications an ideal applicant would possess. Finally, faculty were asked to report the importance of more general admission criteria (e.g., undergraduate
major, GRE scores; Table III) using a 6-point Likert-type scale ranging from 1 (Not Important) to 6 (Very Important/Critical).

Trainees were asked to respond to each of the 12 domains by reporting the level of training that they received prior to graduate training.

Procedure

Using the aforementioned recruitment strategies, participants were asked to follow an electronic link to the online survey. The invitation was posted on the Division 54 electronic mailing list on three separate occasions. Following informed consent, a “feeder” survey outlined the inclusion criteria and led faculty and trainee participants to the appropriate survey. Participants were given the option to enter a raffle for a $15 gift certificate to Starbucks© with odds of winning approximately 1 in 15. Data were collected during April and May 2011. The University of Guelph Research Ethics Board and the Human Subjects Research Committee of The College of Wooster approved all procedures.

Results

All scale variables were sufficiently normally distributed (Tabachnick & Fidell, 2007). Results are discussed in an order that corresponds with the areas of inquiry: faculty responses, student responses, and comparisons of faculty and student responses.
What do Faculty Members at Graduate-training Institutions Look for in Applicants to Their Programs?

Table II presents faculty ratings of ideal training across the 12 domains in ordinal rankings. Although the magnitude of difference among criteria should be interpreted in the context of interval data (mean ratings), the ordinal rankings of mean ratings are indicative of relative prioritization of criteria by faculty participants. A within-subjects ANOVA using Wilks’ criterion revealed significant differences in the mean rating of ideal training across the 12 domains. Despite the small sample size, observed power was .84, reflecting the large effect size in this analysis (partial $\eta^2 = .73$; Cohen, 1992). This large effect size indicates that faculty participants had strong preferences for ideal training in certain domains. As can be seen in Table II, mean faculty ideal experience ratings were highest for Research Methods and Systems Evaluations and significantly less training in the 11 domains other than Research Methods and Systems Evaluations but did not differ from 7 of the other 10 domains. The minimal training levels in the 11 domains other than Research generally fell between the Minimal Exposure and Substantial Exposure levels.

Mean faculty ratings of the importance of general applicant information are presented ordinally in Table III. On average, faculty participants placed the most emphasis on “goodness of fit” criteria: research fit with faculty interests and research fit within general program. However, a within-subjects ANOVA (observed power = .86, partial $\eta^2 = .92$) revealed that mean ratings of these “goodness of fit” criteria did not differ significantly from several other criteria, including applicant intellect, interpersonal skills, recommendation letters, GPA, and GRE scores. However, the “goodness of fit” criteria did differ significantly from several other criteria, such as GRE-Analytic scores, coauthor on a publication, and prestige of undergraduate institution.

What Training Experiences did Current Trainees Acquire as Undergraduates?

Table II contains mean ratings of training experiences attained by current graduate and postgraduate trainees prior to their graduate work. In terms of level of training and based on a within-subjects ANOVA (observed power = .99, partial $\eta^2 = .70$), most domains do not differ significantly with each other, although there are exceptions. Trainees reported significantly more training in Research Methods and Systems Evaluations and significantly less training in Consultation and Liaison Roles than in any of the other domains. The reported level of training for Research training falls between Minimal Experience (practice in a
research and Substantial Exposure (independent research project). For Consultation and Liaison, the reported level of training falls between Minimal Exposure (component of a larger course) and Substantial Exposure (advanced coursework or observation).

Do Student Experiences Align With Faculty Preferences?

Using a series of Independent Samples t-tests, faculty ratings of minimum and ideal training were compared with student reports of their training. Given the large number of analyses, a relatively conservative criterion of .01 was set for achieving significant differences. First, mean faculty minimum ratings were compared with trainee reports of their training. This analysis indicated the extent to which trainee participants met the minimum expectations of faculty participants during the application process. In all cases, student training either met (no significant differences) or exceeded (significant differences) minimum ratings by faculty. The three domains in which students reported more training than faculty-reported minimum were Assessment (Cohen’s $d = .63$), Interventions ($d = .75$), and Social Issues ($d = .72$; all $p$’s < .01; all effect sizes medium to large; Cohen, 1992).

Second, faculty ideal ratings were compared with trainee reports of their training. This analysis offers an indication of the extent to which trainee participants met the minimum expectations of faculty participants. With two exceptions, faculty ratings of ideal preferences exceeded reports of current trainees (all $p$’s < .01; all $d$’s range between 0.64 and 1.03, representing large effect sizes; Cohen, 1992). The two areas where there were no significant differences between faculty ideals and trainee experiences were Assessment and Interventions.

Discussion

The current study explored undergraduate preparation for and admission into graduate school in pediatric psychology by determining: (a) the graduate admissions criteria utilized by faculty, (b) the training experiences current graduate and postdoctoral trainees acquired prior to graduate school, and (c) the degree of consistency between faculty expectations and trainee preparation. General admissions criteria and domains of competency in pediatric psychology were investigated. To a large extent, the results provide empirical support for helpful, but until now anecdotal, advice that has been offered previously (e.g., Hommel, n.d.; Prinstein, n.d.).

Faculty participants reported a strong preference for applicants to have advanced training in Research Methods and Systems Evaluation, relative to the other 11 domains; this was true for both the minimally acceptable level of training as well as for an ideal candidate. Faculty indicated that an ideal applicant completes an independent research project (such as an honors thesis), if not coauthors a peer-reviewed conference presentation. In contrast, faculty placed less emphasis on training in consultation-liaison roles at the undergraduate level with a mean minimal level of training falling between no training and exposure through a broad course. Given the specialized and clinical nature of consultation-liaison, this finding is not surprising. Beyond undergraduate research experience clearly being valued by faculty members and lower expectations for training in consultation-liaison, there was little variability in faculty expectations within minimal or ideal levels of training. Thus, undergraduate exposure to domains in pediatric psychology should be relatively broad, with coverage in areas such as interventions, child and family assessment, disease processes and management, diversity, social issues affecting pediatric populations, lifespan developmental psychopathology, and lifespan developmental psychology.

Consistent with the faculty preference for research training, faculty preferences for general admissions criteria underscored the value of an applicant’s goodness of fit with the faculty member’s research interests as well as research fit within the graduate program. Notably, other general criteria, such as applicant’s letters of recommendation, GPA, GRE scores, and interpersonal skills, were also rated highly and as more important than some criteria (e.g., prestige of institution). Thus, an emphasis on research experiences and goodness of fit should not come at the expense of other common criteria. Taken together, graduate faculty appear to look for applicants to pediatric psychology programs who have strong general criteria (e.g., high GPA, strong test scores, positive letters of recommendation) as well as dedicated research training, preferably with relevance to pediatric psychology.

Key findings from the student survey paralleled the faculty survey results. Current trainees reported significantly more undergraduate training in research and significantly less in consultation-liaison compared to the other domains. Moreover, current trainees met or exceeded the minimum training expected of faculty across all domains, though this finding should not be surprising given that these students were successfully admitted (i.e., the “gatekeepers” granted admission). On average, trainees met faculty-reported levels for an ideal applicant in the two domains of assessment and intervention. In the
remaining 10 domains, students’ mean level of reported training was significantly lower than for the hypothetical ideal candidate, indicating areas where undergraduate preparation could be enhanced to meet the preferences of graduate-level faculty. As the field of pediatric psychology continues to mature, it is likely that undergraduate students will find an increase in opportunities to gain exposure in these various domains.

Across all modes of assessment, research experience, particularly experience that fits with graduate-level faculty and programmatic interests, appears critical during undergraduate training. Thus, the present results emphasize the importance of integrating pediatric psychology research training into an undergraduate curriculum, as it would be quite difficult for prospective applicants to highlight genuine goodness of fit without prior exposure to the field. Such integration could occur via several different models, including (a) the inclusion of undergraduate students in the research of graduate-level faculty, (b) pediatric psychologists mentoring student researchers at primarily undergraduate institutions (i.e., where there are no graduate-level faculty), or (c) students conducting research at applied placement sites where pediatric psychologists are conducting clinical research.

To the authors’ knowledge, this is the first empirical examination of undergraduate training and graduate admissions in the field of pediatric psychology. The results hold important implications for three groups of individuals. For undergraduate students, this research provides empirically based advice for maximizing their chances of pursuing graduate training in pediatric psychology. For faculty who teach and mentor undergraduates, the results provide much needed insight into domains of training to highlight in coursework and for structuring research experiences. The information enables mentors to provide evidence-based advice to undergraduate students who would like to pursue graduate training in pediatric psychology. For graduate-level faculty who assess applicants (i.e., the gatekeepers), this study offers a list of the perceived importance of training domains and mean qualifications reported by current trainees in pediatric psychology, as well as more general admissions criteria that may be helpful for evaluating future candidates.

The unique contributions of this research must be balanced with its limitations, including potential response and selection biases. Members of Division 54 were targeted as a large professional organization of the field. However, this method of recruitment may have excluded relevant individuals. The sample sizes, particularly in response to the faculty survey, are small and may not be entirely representative. However, the number of pediatric psychologists who work in academic psychology departments may be very small (e.g., 5% of respondents in Opipari-Arrigan, Stark, & Drotar, 2006). Unfortunately, the precise number and composition of the population of faculty targeted in this study is unknown. Despite the adequate power for omnibus tests of significance, the large number of post hoc analyses coupled with the relatively small sample sizes may have increased the possibility of a Type II error. Demographic data beyond that reported were not collected, which limits the potential to assess the representativeness of the samples. Where data were available, comparisons between participants included versus excluded revealed that trainees who were slightly younger and less advanced in their training were more likely to complete the survey. Rather than using a Delphi poll methodology to identify important areas of undergraduate training, the 12 domain areas were based on previous task force recommendations (Spirito et al., 2003). This may be a limitation, although participants offered very few responses to open-ended prompts, suggesting that additional rounds of surveying would likely not yield further formative information.

The findings from this study also highlight important areas for future research. The gender imbalance between faculty and students revealed in this study will be an important area for future research to determine if such an imbalance truly exists, and if so, whether such an imbalance is an issue of concern, as well as ways to recruit more diverse samples to the field of pediatric psychology. Future research that develops a greater understanding of how undergraduate students become interested in pediatric psychology will help enhance recruitment. The generation of census data regarding the number of pediatric psychologists on faculty in a variety of settings (e.g., undergraduate versus graduate, PhD versus PsyD, clinical versus counseling) would be useful for generating representative samples. Further, the extent to which these results generalize to other subfields in psychology, and thus supplement available resources (e.g., Norcross et al., 2005), will be an important endeavor.

Undergraduate training in psychology provides a strong foundation in the scientific study of behavior (American Psychological Association, 2007), and graduate training allows specialization. However, given the sheer breadth of the discipline of psychology, the field of pediatric psychology must balance the necessity for a broad foundation with earlier exposure. It is not the authors’ intent to advocate for mandatory “admissions criteria” for graduate training in pediatric psychology. It should be noted that for the levels of training and general admission criteria reported herein, there was variability around each mean,
suggesting that individual faculty have unique expectations and individual trainees possess unique backgrounds. Thus, any recommendations should not be considered prescriptive. The field of pediatric psychology is likely enriched by diversity in undergraduate experiences. However, the reality is that graduate programs and faculty who identify as pediatric psychologists have admissions criteria currently in use that have not been widely known to date. The understanding of what domains and respective levels of training are expected during undergraduate training from the present research can be helpful to faculty and students alike.

Acknowledgment

The authors thank the faculty and trainees who participated in this study. The authors also thank R. G. Steele, PhD, ABPP for his helpful insight during the development of this project, and are grateful to the efforts of Leanne Bird in creating the online protocol and for her assistance with data collection. The authors contributed equally to this article and order of authorship was determined alphabetically.

Funding

This research was supported by Faculty Development Funds from The College of Wooster and University of Guelph.

Conflicts of interest: None declared.

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