Role of Residency Interview Preparatory Activities as a Determinant on Pharmacy Residency Match Rates

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Abstract

Purpose: Different strategies have been implemented to assist students in securing residency positions. The purpose of this study was to explore the impact of student participation in residency preparation activities on match rates.

Methods: A retrospective observational study was conducted to explore the effect of participation in residency preparation activities and grade point average (GPA) on residency match rate. Match rates for students participating in the Residency Interview Preparation Seminar (RIPS) or mock interviews (ie, intervention group) were compared with students who participated in neither activity (ie, control group).

Results: A total of 118 individuals were included in the comparison. Forty-eight students participated in RIPS (n = 29) or mock interviews (n = 19), while 70 students were in the control group. The intervention group had a statistically larger proportion of students securing residency than the control group (81% vs 57%; P = .009). Match rates between students enrolled in RIPS versus those in the mock interview group were not significant. No statistically significant differences were observed based on GPA.

Conclusion: Students receiving additional preparation prior to interviews when seeking postdoctoral training were significantly more likely to obtain a residency position. In academic settings with limited resources, mock interviews may be preferred over comprehensive preparatory courses.

Keywords
pharmacy education, residency, mock interviews

Introduction

Contemporary pharmacy practice is increasingly focused on the provision of direct patient care, necessitating a heightened demand for postgraduate training. A position statement by the American College of Clinical Pharmacy states, by 2020, residencies should be mandatory for any pharmacist providing direct patient care.1 As a result of the additional preparation necessary beyond the entry-level degree, securing postdoctoral pharmacy training has become increasingly competitive. Nationwide, match rates for the past 3 years have only been 64%.2-4 In turn, innovative practices for developing student skillsets to assist in the pursuit of postdoctoral training has become of particular interest at Accreditation Council for Pharmacy Education-accredited schools and colleges of pharmacy in an effort to support students in this endeavor. Various
Residency preparatory seminars and courses have demonstrated favorable outcomes, boosting match rates as high as 83%. Activities employed have included mock interviews during the fourth professional year (P4), complete residency preparatory courses offered to students in the third or P4, and special residency-focused programming and seminars presented by student organizations.

While available data indicate the aforementioned interventions to be beneficial, it is unknown whether students who participate in such preparatory activities possess different characteristics than those who do not participate, leading to increased match rates. One notable characteristic is the pharmacy student’s grade point average (GPA), which is usually considered by residency directors in the application process. One study indicated GPA was the most commonly employed screening of applicants, there is a paucity of data on whether students participating in residency preparatory activities have different GPAs compared to those who do not. Therefore, the primary objective of this study was to compare residency interview preparatory activities in a cohort of students as determinants of residency match rates. A secondary objective was to explore the role of GPA between groups on residency match rates.

Methods
Residency Application Preparatory Activities

At the authors’ institution, an elective course is offered annually to a limited number of P4 students (eg, 10-12) wishing to pursue residency training. The implementation and successes of the Residency Interview Preparatory Seminar (RIPS) course has been previously described. Briefly, it is a 1 credit, 8-week, elective course offered for 2 hours per week to any P4 student demonstrating interest in postgraduate training. The course is held in the evenings to avoid interference with advanced pharmacy practice experiences (APPEs). Topics covered in the course include constructing and refining curriculum vitae (CV), developing the personal statement, enhancing formal presentations, evaluating patient cases, and mock interviewing in both panel and individual settings. The RIPS course was offered during fall semesters for 8 weeks covering October and November scheduled to conclude immediately prior to the American Society of Health-Systems Pharmacists (ASHP) Midyear Clinical Meeting (MCM).

Due to student demand for residency interview preparatory activities outside this course, faculty also offered mock interviews to students not enrolled in the RIPS course who had secured at least 1 residency interview to allow for skills development before a student’s initial interview. Such mock interviews were offered in January of the year following the ASHP MCM. Mock interviews involved a faculty:student ratio of 3:1 and lasted an average of 45 minutes. Questions asked included conventional interview questions (eg, why are you interested in pursuing residency?) and those detailed in published resources such as Get the Residency or Getting Started in a Pharmacy Residency. Additionally, questions based on the student’s CV (eg, please describe your role in this specific activity) or exploratory questions (eg, based on your answer of ‘‘why did you … ?’) were also posed. Mock interviews commonly occurred in small conference rooms on weekdays in the early evening or on weekends to avoid interference with APPEs. Of note, students in RIPS were not eligible to participate in additional mock interviews beyond those included as a component in the RIPS course.

Study Design

A retrospective observational study method was employed to compare residency match rates of students who applied for postgraduate training across a 4-year period (2011-2014). Match rates and GPA for students who participated in residency application preparatory activities (ie, either enrollment in the full RIPS course or those only undergoing mock interviews) were compared to students who did not participate in either type of activity. Students participating in the RIPS course or the mock interviews are referred to in aggregate as the intervention group, while those participating in neither residency interview preparatory activities are referred to as the control group. Residency match rates were obtained via ASHP nonmatch lists and verified via personal communication with students to ensure the data collected were accurate and reliable. GPAs were obtained via the college’s Office of Academic Support Services.

Descriptive statistics were collected for all study variables. Analyses were performed for both aggregated 2-group comparisons and the nonaggregated 3-group configuration. This included frequencies for categorical variables and the mean and standard deviation for the continuous variables. To evaluate differences in match rates between the 3 groups, Fisher exact test was used. To examine differences in GPA between the 3 groups (ie, control, RIPS, and mock interview), Kruskal-Wallis rank-sum test was employed. Data regarding match rates and GPA were also compared evaluating 2 groups (ie, control vs intervention). This study was approved by the University’s Institutional Review Board.

Results

A sample size of 118 students was obtained from 2011 to 2014. Of these, 48 students were classified as the intervention group, comprised of 29 in the RIPS course and 19 in the mock interviews. Seventy students who sought a residency but participated in neither RIPS nor mock interview served as the control group. Match rates and GPA for the groups are shown in Table 1.

Overall, students participating in RIPS or mock interviews had a greater proportion of students securing a residency than the control group ($P = 0.023$, 2-tailed Fisher’s exact test, Cramer’s $V = 0.254$). Also, match rate differences were
Comparing the GPA for those participating in RIPS (91.11 (2.94) versus 90.40 (2.42) for the control group, \( P = .23 \)). Overall, GPA did not differ between RIPS, mock interviews, and control (\( P = .408 \)). The average GPA for the intervention group was 90.83 ± 2.74 (eg, 3.63 of 4.0 scale) compared to 90.13 ± 3.32 (eg, 3.61 of 4.0 scale) for the control group (\( P = .39 \)). Within the intervention group, the GPA for those participating in the RIPS program was 91.11 ± 2.94 (eg, 3.64 of 4.0 scale) versus 90.40 ± 2.42 (eg, 3.62 of 4.0 scale) for those participating in the mock interviews (\( P = .39 \)).

### Discussion

To our knowledge, this is the first publication evaluating match rates and GPA across groups, which may have accounted for differences in match success rates. Across the country, targeted residency application preparation activities at colleges of pharmacy have supported an increase in match rates above the national average. However, some interventions create a high time burden for participating faculty members and represent scheduling and other logistical challenges for interested fourth-year students, who are often completing APPEs. A collaborative time-consuming residency preparation program at The Ohio State University using a variety of residency application preparation activities (eg, CV workshop, mock interviews, pharmacy online residency centralized application service (PhORCAS) review, and match process) yielded a 77% match rate. Another time-intensive, semester-long elective course at Nova Southeastern University including CV development, mock interviews, and student presentations demonstrated a similar match rate of 78%. However, at Drake University, mock-interview sessions lasting 40 minutes with 2-person faculty teams achieved an 83% match rate. Based on the results of our study, as well as these findings, it may be prudent for faculty to revisit the time invested in preparing students for residency interviews. It may be that more resources (eg, books) now exist to assist students in preparing for other areas of the application process (eg, writing a CV and letter of intent, navigating the ASHP MCM, and understanding the matching process). These resources are of great value to students and may provide a similar learning experience to a didactic setting. However, the active learning process of a live mock interview cannot be replicated via textbook or other online, asynchronous resources.

In implementing a residency interview preparatory activity, faculty need to consider the amount of time invested and the availability of resources. A common theme discussed among studies involving courses and longitudinal experiences is the strain of resources (eg, securing additional faculty) and the amount of time invested by the faculty and students. As a result, this explains a smaller number of students which can be accommodated into such programs. Because the number of students applying to residency programs is increasing, faculty should determine efficient strategies to maximize their efforts and effectively assist as many students as possible. Colleges of pharmacy offering opportunities for students to enhance their chances for residency matching may become more favorable for students deciding on which pharmacy program to attend. Therefore, the ability to accommodate as many students as possible in their pursuit for residency training without compromising benefit may be the crux for pharmacy programs moving forward. Although our study and limited previous studies suggest mock interviews have higher or comparable match rates compared to residency interview preparation programs, additional studies are needed since programs differ between colleges of pharmacy.

Some limitations exist in the study. Although the total number of students who participated in the intervention group (ie, RIPS course and mock interviews) is directly known, it is uncertain how many additional students would have qualified to be in the control group but did not match with a program. Data were obtained, as described previously, from ASHP and student self-reporting. Therefore, there could have been some students in the control group who pursued nonaccredited residencies but did not disclose this information. Additionally, there may have been similar students who initially pursued an accredited residency but did not receive any interviews thereby not allowing us to identify them since they would have withdrawn from the match without submitting a rank list. However, inclusion of these additional students would have only lowered the match rate for the control group, further strengthening our results. Recognizing the study sample size may not indicate it is representative, it is the largest sample size published to date and helped illustrate a significant difference.

### Table 1. Descriptive Data for Match Rates and Grade Point Average.

<table>
<thead>
<tr>
<th>Group</th>
<th>Total number of students</th>
<th>Number of students matching (%)</th>
<th>Mean grade point average (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aggregated intervention(^c)</td>
<td>48</td>
<td>39 (81)</td>
<td>90.83 (2.74)</td>
</tr>
<tr>
<td>RIPS course</td>
<td>29</td>
<td>23 (79)</td>
<td>91.11 (2.94)</td>
</tr>
<tr>
<td>Mock interviews</td>
<td>19</td>
<td>16 (84)</td>
<td>90.40 (2.42)</td>
</tr>
<tr>
<td>Control</td>
<td>70</td>
<td>40 (57)</td>
<td>90.13 (3.32)</td>
</tr>
</tbody>
</table>

Abbreviation: RIPS, Residency Interview Preparatory Seminar.
\(^a\)Statistically significant difference between intervention and control groups (\( P < .01 \)).
\(^b\)No statistically significant difference between grade point averages between any groups.
\(^c\)Combination of students participating in RIPS and mock interview.
While this study did examine whether any differences in GPA existed between groups as a secondary objective, a thorough evaluation should be performed to determine if other factors such as professional involvement (eg, leadership positions held and research experience), involvement in other preparatory activities (eg, organization CV/mock interview workshops), or number of interviews applied to and secured have an impact on matching. Additionally, other factors such as age, previous degrees, and primary language may impact match rates and may merit further exploration.

**Conclusion**

In this study, participation in residency interview preparatory activities improved match rates significantly, without an observable influence from differences in GPA. No difference was observed in match rates between students participating in the RIPS elective course and students solely participating in mock interviews. Given the amount of time and faculty resources needed to conduct comprehensive residency interview preparation courses, mock interviews may be the preferred offering to benefit the greatest number of students.

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**References**


