Original Article

Characteristics of Applicants Who Obtain Interviews at Orthodontic Postgraduate Programs

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ABSTRACT

Objective: To evaluate applicant credentials that are associated with receiving interviews to postgraduate orthodontic programs.

Materials and Methods: Twenty-two variables incorporating academic, work, and personal characteristics of 68 applicants were analyzed using a mailed questionnaire survey and data from application files. Applicants were grouped into categories based on the number of interviews reported.

Results: Statistically significant associations were identified between interview category and: age, number of programs applied to, grade in orthodontic course, grade point average, scores from part 1 of the national dental board exam, academic honors, research, recommendation letter from orthodontic faculty, general practice residency, work experience, and community service.

Conclusions: Programs are interested in rounded, well-balanced individuals who excel at more than one thing. Cumulative grade point average and orthodontic work experience were the most significant. (*Angle Orthod* 2010;80:373–377.)

KEY WORDS: Orthodontics; Postgraduate; Interview; Education; School admission criteria

INTRODUCTION

For more than 30 years, the medical resident selection process has been analyzed in an effort to improve it. When medical and dental students are deciding about which postgraduate programs to apply to, they are concerned that they may not even be offered interviews for the available positions.[1] An invitation for an interview indicates an applicant's successful advancement to the next stage in obtaining a position. It also indicates that a program is serious about interest in the applicant. Therefore, an applicant can be considered competitive if he has obtained a high number of interviews. Familiarity with valued credentials would provide guidance to applicants when applying to programs.

Most postgraduate programs do not use objective systems to screen the applicant and objective components of applications.[1] Historically popular criteria are usually grades, scores, and letters of recommendation.[2] Wagoner et al[3] found that as a specialty became more competitive, its postgraduate programs relied more heavily on academic credentials when screening applicant pools. Taylor et al[4] found that the more surgical, more competitive specialty of obstetrics and gynecology focused on academic criteria, while family practice, a more biopsychosocial area of medicine, focused more on dean's letters and personal statements. They concluded that different specialties and programs were not homogenous in their value systems. Price[5] found that professional motivation and previous experience or knowledge in the area were the main factors influencing the likelihood of prospective nursing students being selected for interviews. Aggarwal et al[6] developed a methodology to facilitate surgical residents' selection process using 36 variables from their application file. They found that certain variables were more influential than others.

Few studies have been conducted that explore dental postgraduate program application and selection processes, and none have been done specifically for orthodontic programs. The purpose of this study was to analyze the number of interviews received relative to the number of programs applied to and to describe the

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variables in an applicant's file that are associated with success in obtaining interviews. Identification of these variables will be helpful for program admissions committees reviewing applications and for potential applicants, who will gain a better understanding of what makes one competitive.

MATERIALS AND METHODS

Approval for the project was secured through the authors' institutional review board. Applicants were recruited from the New Jersey Dental School, Department of Orthodontics, postgraduate application pool for the years 2005 and 2006 (program start dates 2006 and 2007, respectively). This is an established, tuition-based program accredited by the Council on Dental Education of 3 years' duration. Graduates receive a certificate of specialty in orthodontics and in addition have the option of enrolling in a master's of science degree in oral biology.

All applicants were included in the study, except for those who withdrew their applications before interviews were granted or whose current address was foreign. One hundred fifty-one applicants from 2005 and 140 from 2006 were enrolled in the study. Variable measures were derived from a combination of a questionnaire and information in the individual's application file. The questionnaire was sent to the applicants with a cover letter, an informed consent document, and a postage-prepaid return envelope via US mail. Anonymity was maintained for the questionnaire response and application data.

The independent variables examined were: (1) age, (2) gender, (3) US citizenship, (4) ethnicity, (5) grade point average (GPA), (6) scores from part 1 of the national board dental exam (NBDE-1), (7) class rank (numerical), (8) grade in orthodontic course, (9) academic honors, (10) clinical honors, (11) research experience, (12) publications, (13) general practice residency, (14) teaching experience, (15) orthodontic work experience, (16) general dental work experience, (17) community service, (18) letter of recommendation from orthodontic faculty, (19) letter of recommendation from an orthodontist in private practice, (20) parent an orthodontist, (21) parent a dentist, and (22) the number of programs applied to categorized into: P1 = 1–5, P2 = 6–10, P3 = 11–15, P4 = 16–20, P5 = ≥ 21. The dependent variables measured were: (1) number of interviews received (0–3, 4–6, or 7 or more); and (2) acceptance into a program and whether that program was their first choice. Presence or absence of the variable was recorded without further analysis of accuracy, quality, quantity, or length of time.

The applicants were divided into three categories based on the number of interviews received: low (0–3, ie, the least successful applicants); medium (4–6); and high (7 or more, implying the most successful applicants).

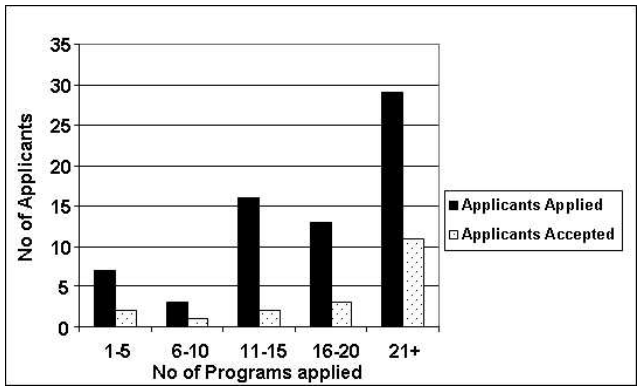

Figure 1. Number of programs applied to vs acceptance.

Statistical Analyses

Data were compiled using Microsoft Excel (v. 5, Microsoft, Redmond, Wash) and analyzed using SPSS statistical software (v. 16.0, SPSS Inc, Chicago, Ill). A descriptive analysis was performed (means and %), and the proportionate data were compared using chi-square or Fisher's exact test with the significance level set at $P \leq .05$. Logistic regression using a stepwise selection procedure was performed to determine whether there was a correlation between the significant variables (covariates) and the categorized interview numbers (dependent variable). The variable ''acceptance into program'' was not included in the model because it did not make sense to use it to predict the number of interviews (Figure 1). Also, the variables ''age'' and ''community service'' were excluded from the model because of a convergence problem.

RESULTS

Data for the 2 years were combined, as there was no statistically significant difference between them. Of the 291 potential applicants, 68 completed the questionnaire, for a response rate of 23.4%. More than 50% of all applicants had attended dental schools that either did not rank their students or did not provide rank or class size information. Tables 1 and 2 show all the variables measured. For the three established categories, there were 30 applicants in the low category, 15 in the medium category, and 23 in the high category. Of the applicants who were ranked, all the applicants in the medium and high interview categories ranked in the top 5% and 7% of their dental school classes, respectively, while all the applicants in the low category were somewhere in the top 29% of their

Table 1. Demographic Characteristics (Number and %) of Applicants with Summary of Fisher's Exact Test Results for Interview Category (Low vs Medium-High) vs Demographic Variables

Variable		Low (n = 30)	Medium (n = 15)	High (n = 23)	Total (N = 68)	*P*[a]
Age (yr)	24–25	2 (6.7)	7 (46.7)	9 (39.1)	18 (26.5)	.0008[a]
	26–30	23 (76.7)	8 (53.3)	13 (56.5)	44 (64.7)	
	31–35	5 (16.7)	0 (0.0)	1 (4.4)	6 (8.8)	
Gender	Male	12 (40.0)	10 (66.7)	11 (47.8)	33 (48.5)	.2111
	Female	18 (60.0)	5 (33.3)	12 (52.2)	35 (51.5)	
Citizenship	United States	23 (45.1)	10 (19.6)	18 (35.3)	51 (75.0)	.7779
	Foreign	7 (41.2)	5 (29.4)	5 (29.4)	17 (25.0)	
Ethnicity	Caucasian	20 (66.7)	8 (53.3)	12 (52.2)	40 (58.8)	.2398
	African-American	1 (3.3)	0 (0.0)	0 (0.0)	1 (1.5)	
	Asian	7 (23.3)	6 (40.0)	10 (43.5)	23 (33.8)	
	Hispanic	2 (6.7)	0 (0.0)	1 (4.4)	3 (4.4)	
	Other	0 (0.0)	1 (6.7)	0 (0.0)	1 (1.5)	
No. of programs applied	1–5	7 (23.3)	0 (0.0)	0 (0.0)	7 (10.3)	.0127[a,b]
	6–10	2 (6.7)	0 (0.0)	1 (4.4)	3 (4.4)	
	11–15	5 (16.7)	5 (33.3)	6 (26.1)	16 (23.5)	
	16–20	4 (13.3)	5 (33.3)	4 (17.4)	13 (19.1)	
	21+	12 (40.0)	5 (33.3)	12 (52.2)	29 (42.7)	
Grade in orthodontic course	A, A–	12 (54.6)	11 (91.7)	12 (100.0)	35 (76.1)	.0010[a]
	B+, B, B–	10 (45.4)	1 (8.3)	0 (0.0)	11 (23.9)	
NBDE-1 score	≥90	15 (53.6)	13 (86.7)	23 (100)	51 (77.3)	< .0001[a]
	<90	13 (46.4)	2 (13.3)	0 (0.0)	15 (22.7)	

[a] Represents a comparison between low and the combined medium and high categories. Statistically significant at < .05 level.
[b] P = .0278 for Cochran-Armitage trend test (one sided). There is a significant linear trend in proportions of the 5 levels of program applied increasing.

class. Of the applicants who attended dental schools that applied a letter grading system, no applicant earned a grade lower than a B in the orthodontic course. The widest distribution of grades (A, A−, B+, and B) was in the applicants within the low category. The mean GPAs were 3.43, 3.77, and 3.80 in the low, medium, and high categories, respectively (Figure 2). NBDE-1 scores (Figure 3) were highest in the high category applicants, who had a mean score of 94. The medium group had a mean score of 91, while the low group had a mean score of 88.

For further analysis, the medium and high interview categories were combined, as there was little difference between them. The results of Fisher's exact test of which variables showed a statistically significant association relative to the two interview categories (low

Table 2. Descriptive Measures for Criteria for Interview Categories with Summary of Fisher's Exact Test for Interview Category (Low vs Medium-High) vs Criteria Variables

	Interview Category						
	Low (n = 30)		Medium (n = 15)		High (n = 23)		
	Yes	No	Yes	No	Yes	No	
Variable	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	*P*[a]
Acceptance into program	13 (43.3)	17 (56.7)	15 (100)	0 (0.0)	22 (95.7)	1 (4.3)	< .0001[a]
Accepted into program, first choice	6 (46.2)	7 (53.8)	7 (46.7)	8 (53.3)	15 (68.2)	7 (31.8)	.4058
Honors, academic	19 (63.3)	11 (36.7)	12 (80.0)	3 (20.0)	22 (95.7)	1 (4.3)	.0098[a]
Honors, clinical	6 (20.0)	24 (80.0)	8 (53.3)	7 (46.7)	7 (30.4)	16 (69.6)	.0844
Research	23 (76.7)	7 (23.3)	14 (93.3)	1 (6.7)	23 (100)	0 (0.0)	.0179[a]
Publications	4 (13.3)	26 (86.7)	3 (20.0)	12 (80.0)	7 (30.4)	16 (69.6)	.1886
Recommendation letter, faculty member	17 (56.7)	13 (43.3)	11 (73.3)	4 (26.7)	20 (87.0)	3 (13.0)	.0252[a]
Recommendation letter, practitioner	5 (16.7)	25 (83.3)	1 (6.7)	14 (93.3)	3 (13.0)	20 (87.0)	.4934
Parent a general dentist	3 (10.0)	27 (90.0)	0 (0.0)	15 (100)	2 (8.7)	21 (91.3)	.6480
Parent an orthodontist	1 (3.3)	29 (96.7)	0 (0.0)	15 (100)	1 (4.4)	22 (95.6)	1.000
General practice residency	13 (43.3)	17 (56.7)	3 (20.0)	12 (80.0)	5 (21.7)	18 (78.3)	.0483[a]
Teaching experience	16 (53.3)	14 (46.7)	9 (60.0)	6 (40.0)	16 (69.6)	7 (30.4)	.2972
Work experience, general dental	10 (34.5)	19 (65.5)	2 (13.3)	13 (86.7)	3 (13.0)	20 (87.0)	.0380[a]
Work experience, orthodontic	6 (20.0)	24 (80.0)	9 (60.0)	6 (40.0)	11 (47.8)	12 (52.2)	.0060[a]
Community service	23 (76.7)	7 (23.3)	15 (100)	0 (0.0)	22 (95.6)	1 (4.4)	.0179[a]

[a] Represents a comparison between low and the combined medium and high categories. Statistically significant at .05 significance level.

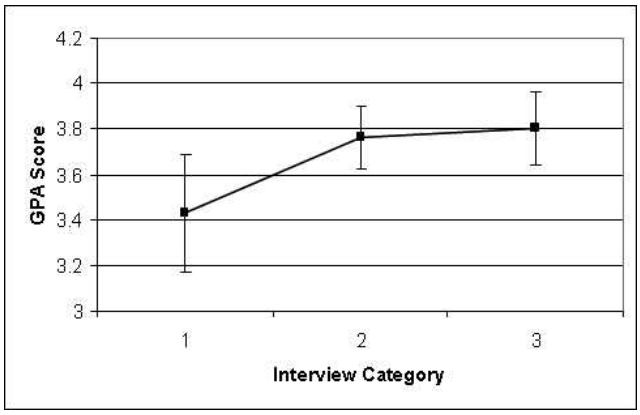

Figure 2. Mean (SD) GPAs by interview category.

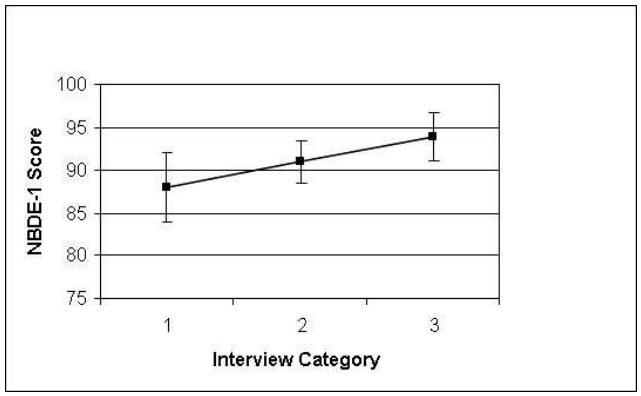

Figure 3. Mean (SD) NBDE-1 scores by interview category.

vs medium-high) are shown in Tables 1 and 2. Statistically significant differences were seen for the variables age, number of programs applied to, grade in orthodontic course, NBDE-1 scores, acceptance into the program, academic honors, research, letter of recommendation from orthodontic faculty, general practice residency, work experience, and community service. No one with NBDE-1 scores below 90 was in the high number of interviews category. Likewise, no one with a B in orthodontics was in the high group. The stepwise selection procedure showed orthodontic work experience and cumulative GPA as independent variables in the logistic regression analysis model.

DISCUSSION

Our study examined the first aspect of the selection process: the initial screening of applications. Almost all applicants were accepted to an orthodontic postgraduate program in both the medium and high categories, and fewer than half in the low category were accepted. The variables that were found to have a statistically significant association with interview category were: age, number of programs applied to, grade in orthodontic course, GPA, NBDE-1 scores, academic honors, research, recommendation letter from orthodontic faculty, general practice residency, work experience, and community service. Of these, cumulative GPA and orthodontic work experience were the most significant.

A limitation of this study was its lack of an optimal response rate. This may have been affected by changes in the mailing addresses of the applicants. However, it was comparable to other mail survey studies. It would have been preferable if class ranking and class size, along with grades, had been available for all applicants; however, this information is not reported by many dental schools. It should be noted that, because of the lack of consistency between schools and their grading systems, as well as possible grade inflation, such variables may be less reliable than expected.[8,9] Several other variables, such as work experience, research, and community service, are more heterogeneous measurements relative to more standardized variables such as NBDE-1 scores. Considerable variability exists in time commitment, role played, topic, level of engagement, etc, and thus such variables are difficult to quantify and compare.[10] It is possible that an interview ratio (number of actual interviews received vs number of actual programs applied to) may have given a more accurate picture of the success rate.

This study gives insight into the orthodontic postgraduate program application and selection processes that has not yet been reported and sets a framework for future studies in this area of dental education. It identifies certain parameters and criteria that should be useful, especially to applicants and programs participating in the PASS System.

Orthodontics remains a highly competitive dental specialty to pursue. Our findings were in broad agreement with other studies that looked at medical postgraduate programs.[6] It is interesting to note that several variables, including both didactic and nondidactic credentials, are influential in receiving interviews. This suggests that programs are interested in rounded, well-balanced individuals who excel at more than one thing. Like other competitive programs in medicine, orthodontics tends to rely more heavily on academic credentials when screening applicant pools.[3,4,7] While the NDBE-1 score is very important, it did not show up in the final model. This could be explained by the fact that applicants are urged to have a score of 90 and above prior to applying to our program. Applicants must also excel in their orthodontic class and earn an A grade if they want to improve their chance of obtaining interviews. Other historically popular criteria such as letters of recommendation are also important and carry more weight if written by an orthodontic faculty member.[2] Professional motivation

and previous experience or knowledge in orthodontics were additional factors influencing the likelihood of applicants being selected for an interview.[5] Interestingly enough, having done a general practice residency or having general practice work experience did not increase one's chance of obtaining more interviews. Programs are more likely to be interested in recent graduates, and perhaps having experience in general dentistry was taken to mean that the individual was not as interested or motivated. This was also reflected in age, since older applicants were less successful in receiving interviews. Community service was also an important variable. Programs seem to be interested in applicants who undertake activities outside the professional setting and show social and human compassion.

The results are useful for both applicants and program directors. Prospective applicants can be aware of the qualities that orthodontic programs value when screening applicants in the first stage of the selection process and shape their academic and extracurricular experiences accordingly. Orthodontic programs can use this information to evaluate their own selection process. They may wish to follow the criteria found here or establish their own criteria to evaluate qualities of applicants that result in the kind of graduates it wishes to produce.

CONCLUSIONS

- There was a statistically significant association between interview category and age, number of programs applied to, grade in orthodontic course, GPA, NBDE-1 scores, academic honors, research, recommendation letter from orthodontic faculty, general practice residency, work experience, and community service.
- Cumulative GPA and orthodontic work experience were the most significant factors in receiving more interviews.

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