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Research Note



Impact of diversity/life experience scores on the demographic makeup of pharmacy students



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ABSTRACT

Introduction: The University of Houston College of Pharmacy (UHCOP) implemented a diversity and lifestyle experience score for use in its admission process. The goal of this research was to evaluate changes in the demographic makeup of individuals that interviewed, matriculated, and progressed before and after implementation of this diversity scoring tool.

Methods: This was a retrospective study of student data from UHCOP in academic years 2016/2017 (pre-tool) and 2018/2019 (post-tool). Individuals \geq 18 years who submitted UHCOP supplemental and Pharmacy College Application Service (PCAT) applications were eligible for inclusion. Exclusion criteria were individuals with incomplete applications, who did not meet minimum coursework requirements, or were missing component(s) of the PCAT, letters of reference, or volunteer service. Student demographic data and information collected from the life experience and diversity scores were compared across students invited to interview, interviewed, admitted, and that progressed after the first year at UHCOP. The chi-square test and analysis of variance followed by post hoc analyses was used to analyze results.

Results: First-generation and socioeconomically disadvantaged students significantly increased in those who applied, interviewed, received offers, and matriculated when comparing 2016 and 2017 admissions cycles with 2018 and 2019 cycles (P < .05).

Conclusions: Use of a standardized holistic score that includes a life experiences and diversity scoring tool during the admissions process supports admission of a diverse student population.

Introduction

The United States Department of Education has reported racial and ethnic disparities in higher education enrollment and attainment over the past 50 years that are tied to gaps in earnings, employment, and other related outcomes for minority groups.^{1,2} It is important to continually optimize the recruitment process to ensure incorporation of a diverse pharmacy student population. Generating a scoring tool to credit prospective students for aspects of diversity have been utilized in higher education, but this is difficult to define and quantify. These scoring tools are generally weighted for non-cognitive skills or traits, are institution-specific, or do not overtly consider racial and ethnic diversity. Race-conscious admissions processes are currently controversial due to

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interpretation of constitutional precedents by the Supreme Court.³ Recently, a legal challenge to affirmative action was seen where allegations of implementing racial quotas were used to alter the admissions of individuals into a university.³ Thus, it is evident that the nature of incorporating parameters of diversity into the admissions process requires further evaluation of components that optimize fair processes and future outcomes. The importance of diversity parameters is twofold: (1) to have a fair process that does not give way to one-off justifications for admitting particular students and (2) to be outcome-oriented by training a representative population of professionals.

Encouraging a diverse student population within pharmacy schools will eventually allow for a diverse composition in the pharmacy workforce.⁴ Arguably, the incorporation of diversity and life experiences scores into the admissions process may aid in diversifying the student population. The aim is to open more opportunities to groups of minority students and produce downstream effects such as reducing educational inequalities and increasing social mobility after graduation.^{1,4,5} A white paper from American Association of Colleges of Pharmacy encourages holistic scoring during the recruitment and admissions process to ensure a quality and diverse applicant pool.⁶ Holistic scoring allows for non-cognitive traits of "maturity, motivation, determination, and resilience to be highlighted.⁶ More recently, use of traditional admissions indicators, such standardized testing, have become controversial as they may present with inherent bias or barriers for individuals, creating an unbalanced class profile.⁷ In order to challenge the assumption that traditional admissions indicators contribute to a fair process and are conducive to a representative student population, diversity and life experience scores may provide an avenue for further academic innovation toward a professionally successful student body.

Applicants for the University of Houston College of Pharmacy (UHCOP) doctor of pharmacy program are currently evaluated based on a holistic scoring that is comprised of numerous variables and includes a life experiences score. Applicants are quantitatively scored based on 12 factors outlined within the holistic, life experiences, and diversity scoring tools (Table 1). The life experiences score quantifies normative attributes, including letters of reference, work experience, and prior degree attainment. The diversity score is one component of the life experiences score that may support minority groups by adding context and further dimension to individual applicant profiles. The scoring for each applicant is conducted in a standardized process by the admissions and progressions committee. Implementation of the diversity score in recent years was made in an effort to aid in interviewing and admitting a more diverse student population at UHCOP. Thus, this study is a timely evaluation of the admissions process to observe any changes observed in the demographic makeup of students. Additionally, this research may highlight the need for purposeful changes in future recruiting efforts or the life experiences and diversity scores. The objective of this study was to evaluate changes in the demographic makeup of students that applied, interviewed, received offers, and matriculated at UHCOP after implementation of the diversity and life experiences scoring tools.

Methods

This institutional review board exempted study employed a retrospective cohort design using the UHCOP's admissions and progressions data for admissions cycles 2016, 2017, 2018, and 2019. Inclusion criteria for this study were individuals \geq 18 years or who submitted both UHCOP supplemental and Pharmacy College Application Service (PharmCAS) applications for the 2016 to 2019 admissions cycles. Exclusion criteria consisted of students who did not meet minimum requirements for coursework, students missing component(s) of the Pharmacy College Admission Test (PCAT) scores, letters of reference, and/or volunteer service, and students not invited to interview due to incomplete applications. The data included demographic data (Table 2) for individuals that submitted complete PharmCAS applications, students that were invited for an interview, students that received acceptance offers into the program, and those that decided to matriculate into the program. There was a total of 2356 students screened for eligibility for inclusion into the study and 208 students were excluded due to incomplete university-specific supplemental applications.

The percentage of socioeconomically disadvantaged, first-generation college, and underrepresented minority students, were identified over the four admissions cycles via text-based response or customized questionnaire (Fig. 1). Students that were socio-economically disadvantaged or first-generation college students were self-identified based on their PharmCAS application materials during a text-based response or selection of yes/no. Underrepresented minority students were defined as Black or African American, American Indian, Alaska Native, Latin-x, or Pacific Islander. Individuals with ≥ 2 races were included if they self-identified as at least one of the underrepresented minority groups.

The admissions and progressions committee performed a holistic review without the holistic scoring tool in the 2016 and 2017 admissions cycles. Student's responses were self-reported via standardized text-based responses captured in PharmCAS. The 2018 and 2019 admissions cycles exhibited the implementation of the holistic tool that included a diversity and life experiences scoring tool. The students from these two admission cycles completed customized questionnaire responses in the PharmCAS application, which provided input for the holistic score calculation. Student data from all four admission cycles were obtained from PharmCAS and the

Table 1

	Components of the	holistic, life	experiences,	and	diversity	scores
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Category	Holistic score	Life experiences score	Diversity score
Components	Grade point average	Awards and publications	Socioeconomic status
	Pharmacy College	Reference letters	First-generation college student
	Admissions Test	Leadership	From a rural area
	Multiple mini-interview score	Work experience	Served in the military
	Life experiences score	Diversity score	International experiences

Table 2

Pre- and post-implementation of diversity scoring tool for underrepresented minorities throughout pharmacy school application process.

Admissions step	Pre (2016–2017) % (n/N)	Post (2018–2019) % (n/N)	P value
Applied	28.3 (364/1284)	33.7 (291/864)	.01
Interviewed	21.7 (129/599)	22.3 (96/430)	.83
Offered acceptance	22.1 (83/380)	23.4 (86/367)	.57
Matriculated	20.3 (52/256)	21.4 (55/256)	.37



Fig 1. Student applications based on admission cycle.

ANOVA = analysis of variance; PharmCAS = Pharmacy College Application Service; PharmD = doctor of pharmacy; UHCOP = University of Houston College of Pharmacy.

admissions and progressions committee. The chi-square test and analysis of variance were used to analyze categorical and continuous data, respectively using Office Professional Plus 2019 Excel, version 1808 (Microsoft Corp.). All data was provided without any student-identified information.

Results

After implementation of the diversity and life experiences scoring tools (2018 and 2019 admission cycles), first-generation and socioeconomically disadvantaged students significantly increased in those who applied, interviewed, received offers, and matriculated compared to the 2016 and 2017 admissions cycles (see Tables 2 to 4). When comparing the demographic makeup of students that applied to UHCOP by admissions cycles 2016/17 and 2018/19, increases were noted in the proportion of applicants who identified as underrepresented minority students (28.3% vs. 33.7%; P = .01), as socioeconomically disadvantaged (11% vs. 25.2%; P < .001), and

Table 3

Pre- and post-implementation of diversity scoring tool for socioeconomically disadvantaged students throughout pharmacy school application process.

Admissions step	Pre (2016–2017) % (n/N)	Post (2018–2019) % (n/N)	P value
Applied	11.0 (141/1284)	25.2 (218/864)	<.001
Interviewed	12.5 (75/599)	23.5 (101/430)	<.001
Offered acceptance	15.3 (58/380)	25.1 (92/367)	.02
Matriculated	13.0 (33/256)	31.8 (81/256)	<.001

Table 4

Pre- and post-implementation of diversity scoring tool for first-generation college students throughout pharmacy school application process.

Admissions step	Pre (2016–2017) % (n/N)	Post (2018–2019) % (n/N)	P value
Applied	14.9 (192/1284)	24.6 (213/864)	<.001
Interviewed	16.7 (100/599)	23.0 (99/430)	<.001
Offered acceptance	15.5 (59/380)	22.1 (81/367)	<.001
Matriculated	14.4 (37/256)	24.6 (63/256)	<.001

as first-generation college (14.9% vs. 24.6%; P < .001). The percentage of underrepresented minority students invited to interview at UHCOP did not change (21.7% vs. 22.3%; P = .83; however, significant increases were noted in the proportion of interview invitees who were socioeconomically disadvantaged (12.5% vs. 23.5%; P < .001) and that were first-generation college students, an increase (16.7% vs. 23%; P < .001). After interviews were conducted, students that received an offer from the admissions committee increased for socioeconomically disadvantaged students (15.3% vs. 25.1%; P = .02) and first-generation college students (15.5% vs. 22.1%; P < .001), but not for underrepresented minority students (22.1% vs. 23.4%; P = .57). A similar pattern was noted for students that accepted the offer as noted by increases in matriculation from socioeconomically disadvantaged (13% vs. 31.8%; P < .001) and first-generation (14.4% vs. 24.6%; P < .001) students, but not for underrepresented minority students, but not for underrepresented minority students, particularly disadvantaged (13.5% vs. 21.4%; P = .37).

A secondary analysis of the holistic scoring system was completed to discuss the relationship of the quantified holistic score to the admission of students into the program. The holistic score was collected prior to the interview on a 0- to 76-point scale. The scores were divided into quartiles (Q) (Q1: 5.28 to 28.02; Q2: 28.03 to 41; Q3: 41 to 54.01; Q4: 54.02 to 71.92), and it was noted that approximately 88% of students with a holistic score of 54.02 or higher were accepted into the college of pharmacy.

Discussion

The holistic scoring tool is a piece of a student's admissions profile that supplements a complete application. The intent of implementing a diversity and life experiences score was never used as the sole means to directly increase acceptance offers or matriculation of diverse students. These scoring tools served as an additional component that was factored into the overall decision-making process. Previously, the admissions and progressions committee solely relied on discussion-based committee meetings and individual review of PharmCAS application materials, which entailed detailed reports of each candidate that may be 20 pages or longer. The committee members were expected to qualitatively review components, including awards, publications, leadership skills, letters of reference, socioeconomic status, military status, and international experiences. This process of qualitative review was tedious and may have caused unique and important aspects of candidates to be overlooked.

After formally implementing diversity and life experiences scoring tools in 2018 and 2019, there was a significant increase in admissions offers and matriculation of first-generation and socioeconomically disadvantaged students compared to 2016 and 2017 admissions cycles. Due to a higher pool of diverse applicants that received offers to attend pharmacy school, the matriculation of more diverse candidates into pharmacy school can be explained. From this finding, it appears that a formalized diversity and life experiences scoring tool aids in the collection of student demographic data. Instead of receiving text-based responses from students to qualitatively explain aspects of diversity, students selected responses using a customized questionnaire. This scoring tool allowed for the diversity and adversity that prospective students face to be incorporated into the admission indicators in a quantified and standardized format. For example, an overlap exists between applicants who are socioeconomically disadvantaged and first-generation college students. Through the customized questionnaire, response bias can be mitigated and applicants may identify as either cohort or both. Identifying diverse cohorts and the nuanced adversity these individuals may face early on may aid in future university efforts to help students adjust and navigate in their academic and professional lives.

Underrepresented minority student applicants offered acceptance was not significantly affected after implementation of the life experiences and diversity scoring tools. This finding was to be expected since the holistic scoring tools did not overtly consider racial or ethnic diversity for the admissions process, in accordance with the current law precedents. Of note, there was an increasing trend in admissions of some underrepresented minority groups that may also be socioeconomically disadvantaged and/or first-generation college students. The significant increase seen in underrepresented minority students who applied to the UHCOP was not attributed to the incorporation of the diversity score in admissions but may reflect increased recruitment and marketing efforts. There have been changes in the marketing materials to promote the university's diverse student population that may have resulted in the perceived desirability of UHCOP to racially and ethnically diverse students who are determining which schools they would want to attend. Contextually, this is important as there may be downstream effects that are attributed to marketing and advertisement materials that confound the findings of this study.

Utilization of a holistic scoring tool should be viewed as another tool in the decision-making process and cannot be used as a screening tool or as a dispositive score. It can be used to complement the time-intensive process regarding applicant review and selection for interview. Indexing a candidate's diverse attributes into a quantitative score can help with the review process by ensuring certain qualities of candidates are emphasized and highlighted for committee review. However, the diversity and life experiences score should not translate into an expedited admissions process at this time and does not replace the full applicant review by each committee member. All applications still require evaluation of numerous soft skills and qualities that cannot be fully captured within a quantitative algorithm. Through UHCOP's review process, there was a correlation exhibited between the students admitted and denied and

the value assigned for the holistic score. This relationship was noted after reviewing the holistic scores for candidates who had fully matriculated into the program. Future studies should be conducted to further evaluate this relationship as well as the progression of the pharmacy students with high diversity and life experiences scores. This was the first study to evaluate effectiveness a diversity and life experiences scores for candidates who had fully is that the diversity and life experiences scores were calculated from self-reported results of a text-based response system and customized questionnaire. Additionally, the nature of the responses may naturally yield different results from students.

Conclusions

Recruiting and evaluating for diversity among the professional student body is imperative to building an inclusive learning environment and creating a pipeline of future clinicians who are representative of the patients they serve. Use of a standardized holistic scoring tool that includes components of diversity and life experiences during the admissions process resulted in improved diversity among accepted college of pharmacy students. After implementation of the holistic scoring tool, the collected student demographic data showed increased matriculation of socioeconomically disadvantaged and first-generation college students into pharmacy school. Although the diversity and life experiences score cannot replace a full applicant review, evaluating for these important variables can help to emphasize strong qualities and factors that may contribute to improved diversity among future pharmacy applicants. Findings from this study may not be generalizable to other pharmacy school programs due to variations in admissions procedures, applicant pools, and other geographical factors that may influence the admission decisions. Pharmacy programs may utilize these results to help improve their admissions processes by implementing similar scoring tools to capture diversity and life experiences. Continual quality improvement of the holistic score is needed to match the changing landscape of students to be admitted.

Disclosure(s)

None.

Declaration of Competing Interest

None.

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