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Implementing a Holistic Review Process for Psychiatry Residency Screening and Interviewing

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Abstract

Objective: The proportion of individuals underrepresented in medicine (URM) within psychiatry is lower than that of the US population. A holistic review of residency applications may alleviate deficiencies in representation and disparities in delivery of care.

Methods: A holistic review process was implemented in 2021-2022 at the University of California San Diego Psychiatry Residency Program. Data (2016-2022) was extracted from the Electronic Residency Application Service to compare differences in the applicant pool before and after implementation of the holistic review.

Results: A total of 6602 individuals applied to the program between 2016 and 2022, increasing from N=762 (2016) to N=1148 (2021). The proportion of female applicants significantly increased ($X^2=12.6$, $p<0.002$) from 42.3% in 2016 to 50.6% in 2022. Across all years, a significantly greater proportion ($X^2=22.0$, $p<0.001$) of those selected for interview were female (55.1%), with the greatest proportion in 2022 (64.5%), following the holistic review. The proportion of URM applicants significantly increased ($X^2=28.0$, $p<0.001$) from 13.4% in 2016 to 21.3% in 2022. There were no significant differences in the proportion of URM applicants selected for interview across all years (range 13% - 21%) and no increase following the holistic review.

Conclusion: The proportion of female applicants interviewed was greater than the proportion who applied. This potential female bias was most striking the year we incorporated the holistic review. The proportion of URM applicants has increased over time and, while the proportion interviewed is greater than the number who applied, this number has not changed over time.

Keywords: Diversity, Inclusion, Psychiatry Residents, Recruitment, Underrepresented in Medicine

Introduction

The presidential executive order of June 25, 2021 on Diversity, Equity, Inclusion, and Accessibility in the Federal Workforce indicated that the Federal Government “should have a workforce that reflects the diversity of the American people.” (1) Diversity and inclusion are listed as one of the four core missions by the Association of American Medical Colleges (AAMC). Despite efforts to improve diversity and inclusion, women, racial and ethnic minorities, sexual and gender minorities, and people with disabilities remain underrepresented in medicine.(2)

A growing body of evidence highlights the importance of implementing these values diversity and inclusion in medicine. Benefits of diversity in medicine are undeniable and include improving cultural sensitivity and patient care, enhancing the educational experience, and addressing disparities in delivery of healthcare to underserved and underrepresented populations.

(3) *For instance*, In a study by Greenwood et al(4), female patients who had a female emergency room physician had significantly higher survival rates. Similarly, advocacy efforts by sexual and gender minority healthcare professionals in the treatment of their HIV infected peers led to more widespread outreach and improved medical care (5), highlighting the need for inclusion within the healthcare system” Similarly, efforts of sexual and gender minority healthcare professionals to advocate for and treat their HIV infected peers in the HIV/AIDS epidemic led to more widespread outreach and care provided.(5) Such study results highlight the need for inclusion of healthcare providers who may have a better understanding of the unique challenges experienced by specific communities within the healthcare system.

In a 2021 study of physician trainee race in medicine, it was predicted that using the traditional application review approach (eg, reviewing the whole application with demographics, test scores, grades) it would take 65 years for Hispanic residents in internal medicine/pediatrics and 77 years for Black residents in radiology to achieve representation proportional to the US population.(6)” It was predicted in a 2021 study that with the observed trends in the US physician trainee race, it would take 61 years for Hispanic residents in internal medicine/pediatrics and 77 years for Black residents in radiology to achieve representation proportional to the US population.(6) Such disparity results calls for interventions to bridge the gap in representation of minorities in medicine and have has resulted in the development of a holistic review process .[7] The holistic review encourages selection committees to consider the “whole” applicant and the value that an applicant would contribute to the school and the field of medicine in light of their unique background.(7, 8) Historically, application review processes tend to place greater weight on metrics like the United States Medical Licensing Examination (USMLE), Standardized Letters of Evaluation (SLOE), the Medical Student Performance Evaluations (MSPE), and induction into the Alpha Omega Alpha (AOA) Honor Medical Society. Biases in this approach have led to disregarding otherwise strong applicants in the pre-interview

screening and post-interview ranking.(9) For example, Barcelo et al. showed a significant increase in the odds ratio of underrepresented in medicine (URM) applicant selection for psychiatry residency interview with implementation of holistic review. De-emphasizing the USMLE STEP1 metric and accentuating value of lived experience were found to contribute to this change.(10)

The Council of Residency Directors in Emergency Medicine created an evidence-based guide that highlighted the importance of holistic review and the mitigation of bias in application review processes *in order improve diversity by creation of a supportive and inclusive culture at the program* in order improve diversity by creation of a supportive and inclusive culture at the programs.(3) In a retrospective cohort study comparing the representation of URM applicants in emergency medicine before and after implementation of a holistic review, there was an increase in the absolute percent of URM applicants invited to interview.(11) Another study showed that a holistic review framework implemented in a pediatrics residency program increased the numbers of matched URM residents over a 3-year period.(12) *In June 2023, the Supreme Court declared a ban of affirmative action in college recruitment processes, underscoring the timely need for implementation of holistic review processes as an alternative approach to promote diversity and provide URM access to higher education. While in affirmative action, quotas in each class may be considered for racial minorities as part of a race-conscious process, holistic recruitment does not target or factor into the score any specific gender, ethnic or racial groups.*(13, 14)

Given the pronounced role of therapeutic alliance in psychiatry compared to other fields in medicine, URM underrepresentation in psychiatry may severely undermine many aspects of patient care. In a recent study, psychiatry residency program directors rated the ability to develop rapport with patients as the most important clinical skill for success in the program. (15) Psychiatric treatment plans are formulated generally in the absence of objective diagnostic measurements like imaging and laboratory results and are mostly based on subjective reports from patients and their families. Psychiatrists' interpretation of these reports and overall

observations are key to diagnoses and formulation of a treatment plan and are subject to biases. Therefore, increasing diversity and inclusion can alleviate deficiencies and disparities in delivery of care within psychiatry.

URM representation within psychiatry is 16.2% in residents, 8.7% in faculty and 10.4 % in practicing physicians, all lower than that of the US population (32.6%).(16) Recent efforts to increase diversity in psychiatry such as diversity initiatives,(17) and implementation of holistic review in applicant selection (10) has been promising and yet calls for further action, support and research.

In an attempt to align our recruitment efforts with inclusion and diversity values, the University of California San Diego (UCSD) psychiatry residency training program has taken several steps to improve diversity, inclusion and equity efforts. *These efforts include establishment of community track to work with underserved populations in the public sectors, creation of an Equity Diversity and Inclusion (EDI) Committee, social justice journal club, diversity series, and Black, Indigenous, and People of Color (BIPOC) community forum for trainees within the residency, Advocacy and Op-Ed training, increasing outreach and community engagement, organizing community immersion tours and the inclusion of EDI principles into evaluations and didactic expectation (Table-Figure 1).* In addition, we implemented a holistic review process in the 2021-2022 application season within the psychiatry residency program at UCSD. In this study, effects of diversity efforts and holistic review process on application selection are showcased.

Methods:

To align our recruitment efforts with inclusion and diversity values, we implemented a holistic review process in the 2021-2022 application season within the psychiatry residency program at the UCSD. The holistic file review strives to eliminate potential sources of bias (demographics,

photo, grades, test scores) and identifies characteristics we value in our trainees (leadership qualities, professionalism, community involvement, clinical acumen and research experience).

In an attempt to blind the faculty and senior residents who reviewed applicant files, applicants' photos, demographic information including race, ethnicity and gender identification were removed. Similarly, test scores (United States Medical Licensure Exam (USMLE) and Comprehensive Medical Licensing Examination (COMLEX)), grades were not available to evaluators, and AOA status was not considered. Files were scored primarily based on personal statement, dean's letter narrative information, activities statements and letters of recommendation in the following domains: Leadership, Community Service, Research/Scholarship, Reference Letters, Professionalism and Awards. As part of the process, we also took notes as to whether an applicant was the first in the family to go to college or had overcome significant adversity in their life. The scoring sheet is shown in *Table 21*. In addition, as a group we developed a shared mental model of the qualities we value in our residents to consider in application review: team player, receptive to feedback, resiliency in face of adversities, intellectual curiosity, altruism and academic potential. *Modifiers such as a history of significant resiliency in the face of adversity or distance traveled (eg, being the first in the family to go to college or coming from foster care) were used to multiply the final score. The total score for each applicant was computed and applicants were invited for interviews based on their score.*

Data from 2016 through 2022 was extracted from the Electronic Residency Application Service (ERAS). Race and ethnicity data was not available for 2021. Racial categories were grouped into URM+ or URM-. URM+ included individuals who identified as Black, Hispanic, Indigenous, Native American, Native Alaskan, Native Hawaiian or Pacific Islander. Gender was classified as Female, Male, or Other/Non-Binary. Data was quantified and analyzed primarily using chi-square analysis.

Results:

A total of 6602 individuals applied to the psychiatry residency program at UCSD between 2016 and 2022, increasing from N=762 per year in 2016 to a high of N=1148 in 2021. We interviewed between 9.6% to 13.4% of applicants in the years examined. Over time, the proportion of female applicants significantly increased ($X^2=12.6$, $p<0.002$) from N=322 (42.3%) in 2016 to N=555 (50.6%) in 2022. Across all years, a significantly greater proportion ($X^2=22.0$, $p<0.001$) of those selected for interview were female (55.1%), with the greatest proportion in 2022 (64.5%), following the holistic review (Figure 42).

Similarly, the proportion of URM applicants significantly increased ($X^2=28.0$, $p<0.001$) from N=102 (13.4%) in 2016 to a high of N=234 (21.3%) in 2022. There were no significant differences in the proportion of URM applicants selected for interview over time among the pool of URM (range 10.3% - 18.2%) or the proportion of URM selected for interview out of all applicants (range 13.9% - 20.9%). (Figure 23). Altogether, across all years, 16.5% of our applicants were URM while 18.1% of those interviewed were URM. In 2022, following the holistic review, there was no change in the proportion of URM interviewed.

To investigate the breakdown of URM applicants across US Medical Schools, US Osteopathic Schools and Foreign Medical Schools we performed additional analyses. There was a significant difference ($X^2=69.5$, $p<0.001$) in the proportion of URM applicants by type of school with the greatest proportion in US Medical Schools (16%) compared to Osteopathic (8%) and Foreign (8.7%): (Figure 34). *These results provide insight into potential areas for improvement in outreach efforts and guides future diversity initiatives to improve URM engagement and participation.*

The residents who matched in the UCSD psychiatry residency between 2016 and 2022 had a similar demographic breakdown to the applicants interviewed. Figure 45 shows the number of URM and non URM residents *matched* into the program during this time. Of the 81 *matched* residents, 11 (13.6%) were URM and 51 were female (63%). There were no significant

differences by year of residency for either URM status ($X^2 = 10.4$, NS; range 0% in 2018 and 2019 to 40% in 2016) or sex ($X^2 = 2.3$, NS; range 50% in 2016 to 72.6% in 2017).

Discussion:

Over the last 7 years, the number of applicants to the psychiatry residency program at UCSD has increased, mirroring the national statistics. The proportion of female applicants has increased over time, but the proportion interviewed and *matched* at UCSD was greater than the proportion who applied. This finding of a greater number of females interviewed was most striking the year we incorporated the holistic review, although *this finding* does not indicate causality. A possible explanation for *this the over representation of is that* female applicants *in our interview pool* may *have be that female applicants* exhibited qualities that were especially highlighted in holistic review; for instance, resiliency and being the first in the family to go to college. ~~*In addition, it was difficult to fully blind application reviewers to gender and race since the applicant's name was available along with pronouns used in the Dean's, and recommendation letters, highlighting a limitation in the holistic review process undertaken in our study. To address this limitation, we suggest future initiatives to leverage recent advancements in language-based artificial intelligence technologies to remove clues to race/ethnicity in the applications.*~~

In both traditional and holistic residency selection processes, the evaluation of candidates for residency and fellowship positions are subject to biases; and although implicit bias has negatively impacted URM applicants or women in the past, (18) recent efforts to mitigate implicit bias and intentional efforts to increase diversity may have contributed to the recent increase in representation of URM and female trainees in psychiatry in general and to our program in particular given our interest in this topic even prior to implementing the holistic review.

Similarly, recent studies exploring gender trends in the recruitment of women into psychiatry fellowship programs in the US showed an increase in the number of female fellows in forensic psychiatry to become a majority in 2021 (58.8% in 2021 compared to 27.8% in 2007). (19) Similarly, a 5.2% relative increase was seen from 2007 to 2019 in consultation liaison female psychiatrists. Female trainees in geriatric psychiatry fellowships increased from 53.75% in 2007-08 to 69% in 2019-2020 (8.4 % relative increase). (20, 21) However, female addiction psychiatry fellows decreased of from 46 % in 2007-08 to 42 % in 2019-20 (10.9 % relative decrease) according to Saboor et al. (22). Despite the increase in representation of female psychiatrists in residency, fellowship and early career positions, in a 2016 study only 10% of psychiatry chairs were female. (23) *The poor representation of females chairs in this study highlights the importance of extending diversity efforts, including implementation of a holistic approach in the application review process, to mitigate bias and overcome barriers to equitable representation for URM and women faculty in leadership positions* Such results highlight the importance of extending diversity efforts including implementation of a holistic approach in the application review process across all levels to mitigate bias and overcome barriers to equitable representation for URM and women faculty in leadership positions.

According to a 2019 resident/fellow census reported by American Psychiatric Association, fewer than 10% of incoming PGY-1 psychiatry residents self-identified as URM in 2018. (24). Our data show that 13.6 % of the total residents **matched** to our program between 2016 and 2022 were URM while the proportion of URM who applied was 16.5% and the proportion interviewed was 18.1%. While not statistically significant, the proportion of URM applicants interviewed was greater than or equal to the proportion who applied in the majority of years examined in this project. However, as mentioned above, although not statistically significant, the proportion of URM who **matched** into the residency program was lower than the proportion who interviewed. These findings call for future research to identify factors that URM applicants consider while ranking the program. One important factor that contributes to satisfaction and retainment of

URM trainees and professionals is mentorship. While many URM trainees prefer race concordant mentors, if this is not possible, having a mentor who understands the specific challenges or nuances a particular mentee faces is essential.(25) Additionally, providing sponsoring opportunities by matching the URM trainees to local and national leaders will help provide further guidance and opportunities. (26) Another strategy suggested by prior studies to increase the diversity of psychiatry trainees is outreach to promising candidates to convey an interest in having a particular URM applicant trainee at the program. (27)

There were several limitations of the current study. In additionFirst, it was difficult to fully blind application reviewers to gender and race since the applicant's name was available along with pronouns used in the Dean's, and recommendation letters, highlighting a limitation in the holistic review process undertaken in our study. To address this limitation, we suggest future initiatives to leverage recent advancements in language-based artificial intelligence technologies to remove clues to race/ethnicity in the applications. Second, it is not possible to eliminate other sources of bias by individuals who evaluate students on clinical rotations. Finally, we do not report on the ranking of applicants by URM and gender status to preserve confidentiality given that the residents included in this manuscript are still in training and could be easily identifiable.

We suggest that future research be done to assess the impact of faculty and staff URM representation on attracting more applicants into the program and faculty positions after residency. Furthermore, prioritizing education regarding healthcare disparities by providing more clinical opportunities to work with the underserved populations may impact URM evaluation of the program. We encourage future research to consider more rigorous methodologies with control groups to study the impact of holistic reviews on psychiatry residency recruitment. Clearly, further work is needed to increase diversity in psychiatry training and to continue to eliminate potential bias in the process.

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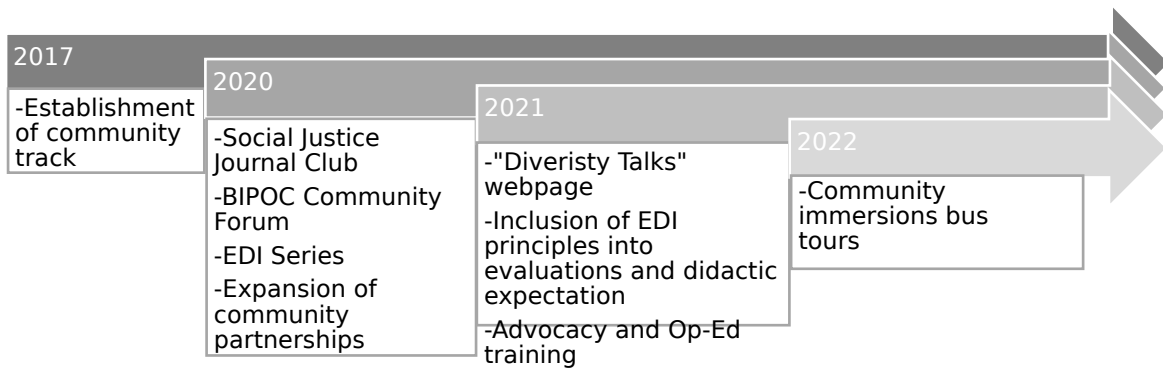


Figure 1: Timeline of UCSD Department of Psychiatry Equity, Diversity, and Inclusion Efforts (2020-2022)

Domains	5=Excellent 1=None/Serious Concerns	Comments
Clinical Performance		
Leadership		
Community Service		

Research/Scholarship		
Reference Letters		
Professionalism (-1 if problematic)		
Awards		
Total Score		
Modifiers:	Yes=1, No=0	
Resiliency		
Distance		
Multiply Total Score X 1.1 or 1.2 (both)		
	Yes=1, No=0	
Red/Yellow Flags		
CA/UCSD Connection		
	Yes=1, No=0, On Hold = 2	
Interview Recommendation		

Table 21. File Review Score Sheet

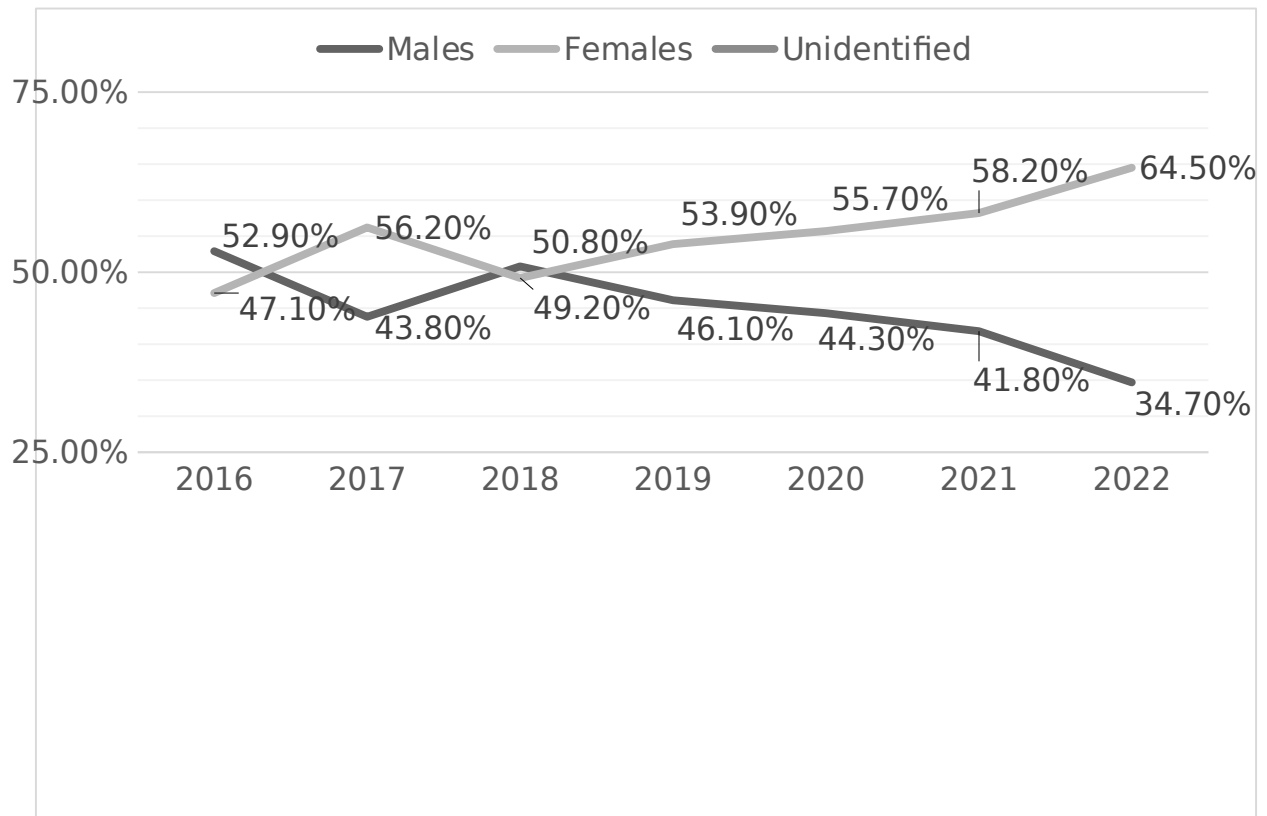


Figure 12. Total Applicant interviewed by Gender Each Year (2016-2022)

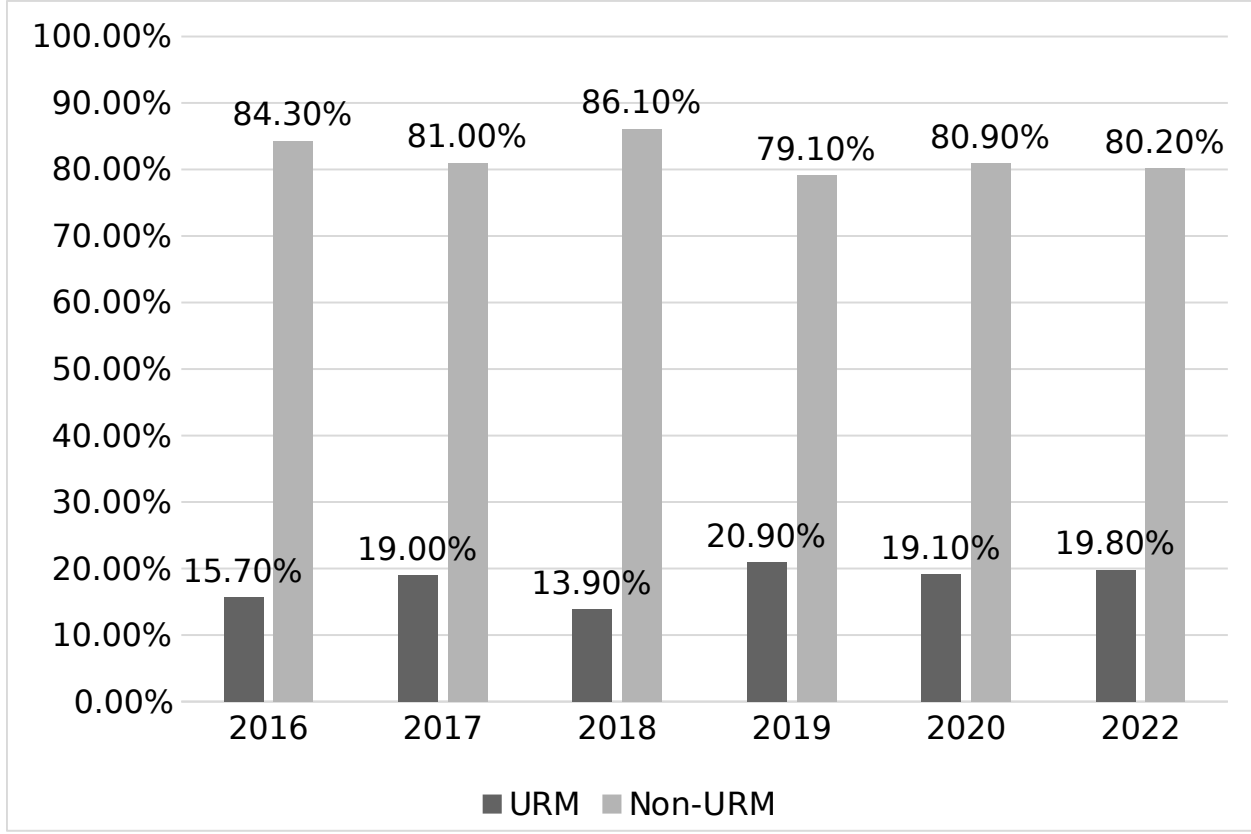


Figure 23. Total Applicants Interviewed by URM Identity Each Year (2016-2022)

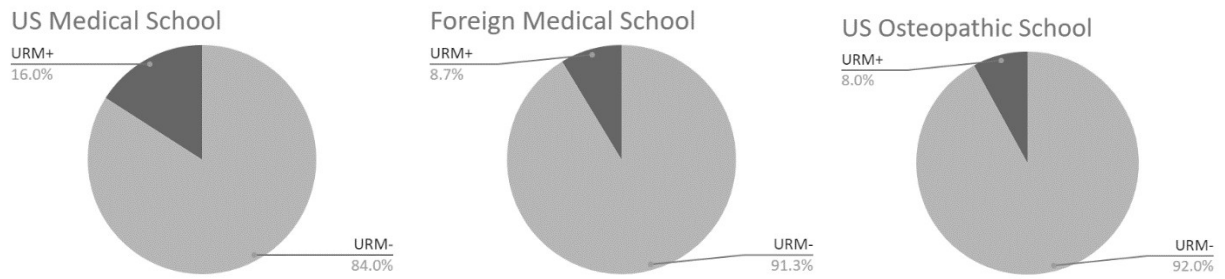
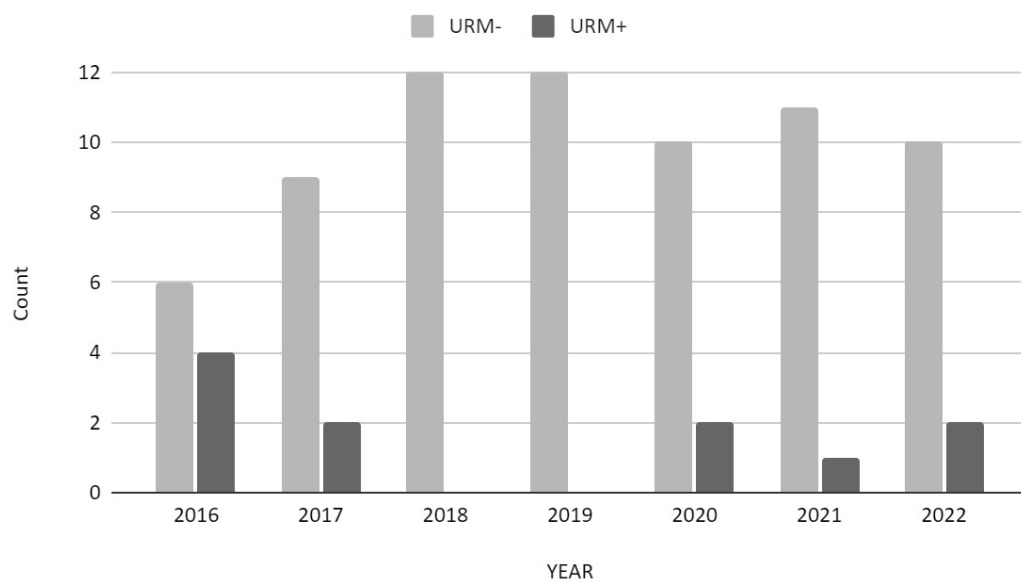


Figure 34. *Proportion of URM applicants by type of school*

URM- and URM+



Gender

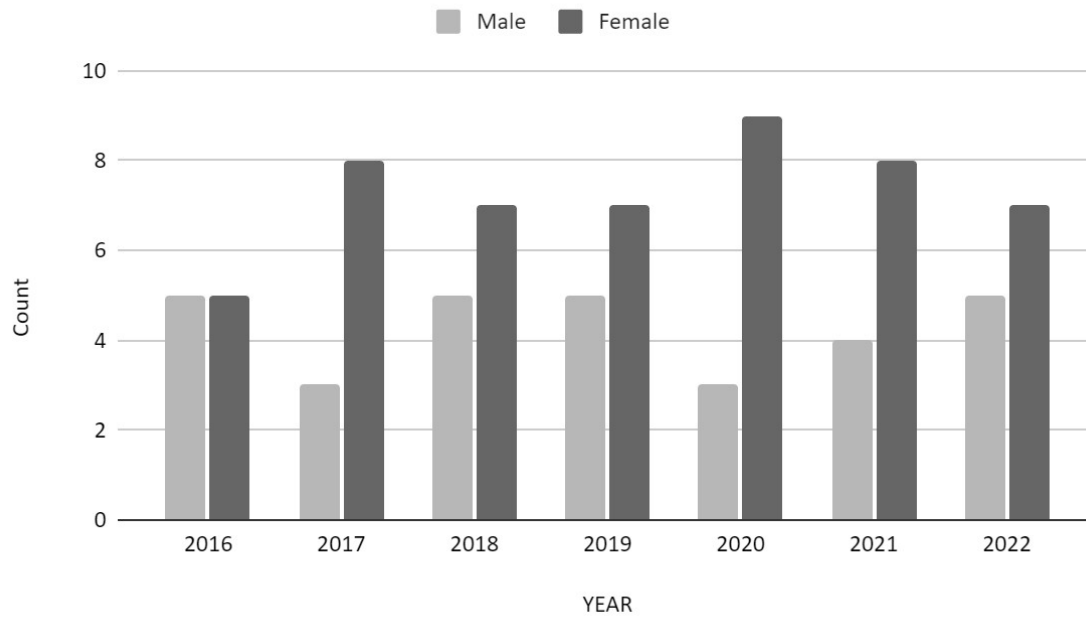


Figure 4. A. Number of URM+ and URM- residents *matched* each year (2016-2022),
B. *Number of Male and Female residents matched each year (2016-2022)*