Inquiry and Word Count (LIWC-22) using a customized data dictionary. The letter authors, writer professional rank, and all applicant rankings were collected from standardized letters. Categorical variables were summarized using frequencies and percentages. Continuous variables were summarized with means and standard deviations. Associations between discrete variables were tested using the Chi-Square test. Student's t-test was used to compare strength of association in continuous variables. ANOVA modeling was used for multivariable analysis. Statistical significance value was set to $p < 0.05$.

RESULTS: 304 applicants were included with 1124 total narrative letters of recommendation (LOR). Matched applicant LORs had significantly higher counts across several favorable categories with the most used being research, grindstone, likability, and standout (**Table 1**).

Letter authors included departmental/divisional chairs (33%), program directors (31%), and other faculty members (26%). Applicants with letters by plastic surgeons versus other specialties had significantly higher odds of matching (OR 7.89, $p<0.001$).

380 standardized letters were available for analysis. Important factors of standardized evaluations associated with matching included patient care, professionalism, team player, and academic skills (**Table 2**). Regarding overall rank, a ranking of 1-5 was positively associated with matching (OR 3.94, $p<0.001$), while ranking 5-10 and ranking 10-20 were negatively associated with matching (OR 0.55, $p=0.03$ and OR 0.07 $p=0.01$, respectively).

CONCLUSION: This study provides the first comprehensive analysis of both narrative and standardized letters of recommendations for integrated plastic surgery applicants. The top favorable domains used in matched applicant letters were research, grindstone, likability, and standout. Matched applicants were also ranked higher overall and across several key categories of the standardized letter, and those with worse overall rankings had significantly lower odds of matching. Letter writers and applicants may use this study to maximize interpersonal and clinical strategies to improve match success.

7. DETECTING BIAS IN PLASTIC SURGERY RESIDENCY APPLICATION LETTERS OF RECOMMENDATION USING NATURAL LANGUAGE PROCESSING

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BACKGROUND: The shift to pass/fail grading by medical schools and the USMLE Step 1 exam has reduced the available application evaluation measures, increasing the reliance on subjective Letters of Recommendation (LoRs). While all measures are susceptible to bias, LORs may be especially prone to implicit bias. Fortunately, advances in Natural Language Processing allow systematic investigation into such potential biases. This study investigates implicit biases in LoRs in plastic surgery residency applications using linguistic analysis and statistical methods, exploring the potential of any detected differences to impact the evaluation of applicants.

METHODS: The dataset comprised 5,679 plastic surgery residency applications submitted via the ERAS system to a midwestern academic medical center over a six-year period, 2017-2022. Python scripts anonymized LORs using Part-of-Speech tagging, Named Entity Recognition, and applicant-specific data to ensure the removal of identifiers. The research team iterated on a 400-word dictionary containing descriptive attributes of applicants, such as academic performance, personality traits, and professional skills. These words were organized into 24 categories by team consensus. The Linguistic Inquiry and Word Count (LIWC) software was used to quantify word frequency, count, and specific linguistic patterns based on this dictionary. These categories were then compared based on applicant-identified gender and race or ethnicity using a two-way MANOVA.

RESULTS: There was a statistically significant interaction between gender and race/ethnicity on combined dependent variables, $F(96,22596)=1.453$, $p=.003$, Pillai's Trace=.025. Given the significant multivariate interaction, significance tests for individual dependent variables were examined. There were significant univariate interactions for different categories. Men of multiple races were more likely to have Activity comments, $F(4,5669)=2.819$, $p<.001$, or were more likely described as Inventive or Curious, $F(4,5669)=.495$, $p=.034$. Women of multiple races were more often described as Sensitive or Nervous, $F(4,5669)=.005$, $p<.001$, with descriptors such as Solitary or Reserved, $F(4,5669)=.092$,

p=.008, used more often for Asian and Black or African American women applicants. There was a significant main effect of gender for Gendered Terms, F(1,5669)=.038, p<.001, with gendered language more often used for men, and for Technical Skill, F(1,5669)=.007, p=.002, with comments more often on technical skills of women. There were no significant main effects for race/ethnicity.

CONCLUSION: Significant differences were detected based on combinations of gender and race or ethnicity as well as on gender alone, so it is essential to consider the intersectionality of identities when examining for bias. Potential differences in language are important to further examine and consider, as they may impact evaluations of applicants' qualifications for plastic surgery residency programs.

8. THE PLASTIC SURGERY-FOCUSED PRELIMINARY YEAR AS A PATHWAY TO THE PLASTIC AND RECONSTRUCTIVE SURGERY MATCH

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BACKGROUND: The integrated Plastic and Reconstructive Surgery (PRS) match is one of the most competitive among residency programs, with up to 45% of applicants going unmatched. For unmatched candidates, the setback often necessitates reflection on how to strengthen their applications. A unique option for candidates committed to PRS is a Plastic Surgery-Focused Preliminary Year (PSPY), designed to provide unmatched candidates with an opportunity to enhance their clinical skills, expand their professional network, and ultimately increase their chances of a successful match in PRS.

METHODS: We conducted a case series to assess unmatched applicants who pursued a PSPY at our institution. Participants, most underrepresented in medicine (UIM), completed a general surgery (GS) preliminary internship with early PRS rotations. The PSPY aimed to provide mentorship, clinical exposure, and opportunities to demonstrate professional competencies. Faculty from both PRS and GS departments systematically evaluated participants on clinical performance, professionalism, and adaptability. Data on match outcomes were analyzed to evaluate the effectiveness of the PSPY in improving match success into PRS programs.

RESULTS: A total of six unmatched applicants have either completed or are currently completing the PSPY. Among the three graduates, all (100.0%) successfully matched into integrated PRS residency programs. Notably, each participant was a highly competitive applicant who, despite strong academic and extracurricular profiles, went unmatched. Factors contributing to their eventual success included consistently high faculty evaluations, significant development of clinical skills, and the establishment of strong mentorship relationships within the PRS department. The PSPY provided a platform for these candidates to demonstrate their surgical capabilities in both PRS and GS settings, supporting a comprehensive evaluation that extended beyond academic achievements.

CONCLUSION: The PSPY offers unmatched candidates a vital opportunity to strengthen clinical skills competencies, expand professional networks, and improve their chances of matching into competitive PRS programs. This case series highlights the PSPY's effectiveness for highly qualified but unmatched candidates. This program allows candidates to refine their skills in a real-world environment, providing reviewers with a more accurate assessment of their potential. In essence, it immerses them in a high-pressure setting for genuine evaluation. Additionally, for UIM candidates, the PSPY promotes greater diversity and representation within the specialty.

10. EFFECT OF USMLE STEP 1 PASS/FAIL SHIFT ON PUBLICATION BEHAVIORS AMONG SUCCESSFULLY MATCHED INTEGRATED PLASTIC SURGERY RESIDENCY APPLICANTS

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