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OBJECTIVE: To determine if gender differences exist in letters of recommendation (LOR) for Reproductive Endocrinology and Infertility (REI) fellowship.

MATERIALS AND METHODS: All REI fellowship applicants’ LOR submitted in 2021 to a single institution were linguistically analyzed and qualitatively coded. Demographic information of both applicant and letter writer was collected and letters were de-identified by removal of names and pronouns of applicant and letter writer. Linguistic Inquiry and Word Count (LIWC), a validated computerized text analysis software, was used to explore the presence of 4 summary variables and 20 word categories. Multivariable analysis compared the LOR linguistic characteristics by gender of applicant and author. Dedoose was used for qualitative analysis to compare the frequency of code themes in LOR by applicant gender. Investigators independently coded letters and then met to reconcile codes with a third party if agreement could not be reached. Conducting a qualitative analysis in parallel to the linguistic text analysis allowed for further exploration of themes conveyed that were not evaluated in the text analysis. The mixed-method design was planned a priori. Interrater reliability was measured using Cohen’s kappa coefficient.

RESULTS: There were 272 letters from 72 applicants, 54 (76%) of which were women and 17 (24%) were men. One applicant was excluded because gender information was not specified and 269 letters were included in the LIWC and qualitative coding analysis. One hundred ten letters (41%) were written by women, and 159 (59%) by men. LOR written for men had higher mean word count than those written for women (537/27 vs 474/10, p = 0.04).

LIWC showed that there were more risk words used to describe men applicants (p = 0.01). When comparing word categories by applicant gender, women letter writers more frequently used communal (relationship-oriented), affect, and home word categories while men writers more frequently used affiliation-related words.

The most common themes identified on qualitative analysis were ability, research achievement, and leadership. LOR for males more commonly included: ability, rapport with patients, leadership, and altruism, while women applicants’ LOR more frequently mentioned grindstone and research achievement. Male applicants more commonly had strong endorsements while women had more doubt raisers. Cohen’s kappa coefficients ranged from 0.69 to 0.80, indicating good to excellent agreement. Inter rater reliability was measured using Cohen’s kappa coefficient.

CONCLUSIONS: Gender differences exist among both letter writers and applicants. Qualitative analysis revealed that women applicants’ LOR more frequently mentioned grindstone and research achievement while men more likely to be described by their work ethic and research participation while women were more likely to be described by their ability and leadership.

IMPACT STATEMENT: Gender differences exist in letters of recommendation for Reproductive Endocrinology and Infertility fellowship applications. Awareness of bias and mitigation strategies should be implemented to improve gender equity.

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**TABLE 1.**

| Subscale of MBI-HSS | Score Before Pandemic | Burnout Level | Score After Pandemic | Burnout Level | P-Value |
|---------------------|-----------------------|--------------|----------------------|--------------|---------|
| Emotional Exhaustion | 24.11                 | Moderate     | 33.36                | High         | .003    |
| Depersonalization   | 13.36                 | High         | 17.38                | High         | .09     |
| Personal achievement | 30.79                 | High         | 27.55                | High         | .045    |