

## Satisfaction with ophthalmology residency training from the perspective of recent graduates in region Riyadh: a cross-sectional study

### Authors:

Meshari Mohammed ALRUWAYS\*\*\*, OSAMA MOHAMMED ALRUWAYS\*, MuathThaar Aladhyani\*, ABDULAZIZ MOHAMMED ALSAHIL, ABDULMAJEED BALUD ALOTAIBI, Dhafer Mubarak Alwadani\*, Sanjay Kumar Deshwali\*, Maninder Goyal\*\*

\*\*\*Service Resident ophthalmology, college of Medicine, Taif university

\*Medical Student College of Medicine, College of Medicine, Shaqra University, KSA

\*Medical Student College of Medicine, Shaqra University

\*\*Dawadmi General Hospital, Dawadmi, KSA

### Corresponding Author:

Meshari Mohammed Alruways

\*\*\*College of Medicine, Taif university

Article Received: 17-February-2024, Revised: 07-March-2024, Accepted: 27-March-2024

### **ABSTRACT:**

**Objective:** This cross-sectional study in Riyadh aims to look into graduates' opinions about how satisfied they were with their ophthalmology residency program. It is essential to comprehend the satisfaction levels of newly licensed ophthalmologists in order to assess and enhance the program. By comparing 2020 graduates to 2021 graduates, the study seeks to identify factors that influence satisfaction in order to offer insights for program enhancement in region Riyadh.

**Method:** In order to find out what factors affected the general level of happiness among 150 university graduates who graduated between 2020 and 2021, the study used a cross-sectional design. One of the main tools in this study, the structured questionnaire, was painstakingly created to gather a wide range of data essential to comprehending the variables affecting graduates' general satisfaction. The demographic segment of the survey collected information on age, gender, year of graduation, and marital status, which served as a strong basis for the analysis that followed. While inferential statistics contrasted happiness levels between the two graduation years, descriptive statistics highlighted demographic traits and overall satisfaction levels. Correlation analysis looked into relationships between satisfaction dimensions, whereas regression analysis determined factors impacting overall satisfaction. **Result:** A notable 29.33% of the participants expressed being "very satisfied," constituting a significant portion of the cohort. The majority of respondents, comprising 47.33%, reported being "satisfied" with their experiences. A smaller proportion, 12.66%, maintained a "neutral" stance, while 6.00% expressed "dissatisfaction" and 4.66% reported being "very dissatisfied." A notable 29.33% of the participants expressed being "very satisfied," constituting a significant portion of the cohort. Overall satisfaction tends to decrease as well. The correlation matrix further reveals associations between different aspects, such as the positive correlation between clinical experience and educational resources ( $r = 0.46$ ). **Conclusion:** Ultimately, the availability of an operational ophthalmology residency program affiliated with the student's medical school is most strongly associated with matching into an ophthalmic residency program.

**Keyword:** Satisfaction, Ophthalmology residency training, Perspective, Recent graduates, Riyadh

### **INTRODUCTION:**

Abramoff et al., who discovered a lack of consistent curriculum for teaching and assessing resident competencies in this domain (Abramoff et al., 2008) Factors impacting candidates' rating of residency programs were identified in a survey with a 37% response rate (218 out of 595). The three most important criteria were resident-faculty relationships, clinical and

surgical volume, and training variety. The fourth most important aspect was the faculty interview experience, with a poor interview experience being the most common "red flag." Surprisingly, candidates' ratings of these criteria were unaffected by age, gender, or marital status. (Yousuf, Kwagyan, & Jones, 2013) Teaching in an ophthalmology residency includes clinic instruction, surgical skill learning, and the formation of a doctor-

patient relationship(Villar & Cardoso, 2002).Several research in the field of ophthalmology provide insight on educator characteristics and the efficiency of educational methods. Applicants seeking post-residency fellowships or academic positions emphasized chances for resident research and the prestige of a program. In their evaluations, female and ethnic minority applicants underlined the importance of faculty and resident diversity by gender or ethnicity(Yousuf et al., 2013). A study evaluating postgraduate ophthalmic education in the United States discovered that 83% of attending clinicians were satisfied with the courses(Shuttleworth & Marsh, 1997). Another study looked into specific techniques for teaching and assessing surgical competency in ophthalmology residency. Recommendations included the development of written and unambiguous goals for each training step, as well as the use of formative feedback rather than summative evaluation.(Lee et al., 2007)In-person ophthalmology electives improve our capacity to watch students and assess their clinical performance, encompassing their professionalism, patient-interaction skills, integration into the healthcare team, and clinical and surgical abilities. In the postpandemic period, electives are probably going to incorporate a hybrid paradigm of self-directed learning, telemedicine, simulation, virtual didactics, and in-person clinical experiences.(Duong et al., 2020)

A cross-sectional survey discovered that recent ophthalmology residency program graduates were very or extremely happy with their clinical knowledge (89.1%) and surgical skills (93.4%).. However, there were certain gaps, such as clinical knowledge in the orbit (48.3%) and surgical abilities in refractive surgery (65.9%) and the orbit (59.2%)(Millán & de Carvalho, 2013)Another study revealed a significant link in which residents who took a gap year were more likely to submit at least two articles as second authors. However, a statistically meaningful association between the decision to take gap years and the output of publications with senior authors at their respective schools did not appear. As a result, the study's general conclusion proposes that residents who take gap years after graduation may contribute to increased publication production during their residency term(Choudhry et al., 2023). Nonetheless, this enhanced output does not appear to be associated with notable associations with publications involving senior writers affiliated with their particular institutions(Abdelfattah, Radwan, & Sadda, 2016). Thus this cross-sectional study in Riyadh intends to investigate graduates' perceptions on their ophthalmology residency training satisfaction. Understanding the levels of satisfaction among new ophthalmologists is critical for program evaluation and improvement. The study aims to discover elements that

contribute to satisfaction in order to provide insights for program enhancement by involving 2020 graduates compared to the 2021 graduates in region Riyadh.,. The study intends to provide region-specific insights that can lead the refinement of ophthalmology residency programs, ultimately contributing to the professional growth and contentment of newly trained ophthalmologists in the region by focusing on the distinctive environment of Riyadh.

### **METHODOLOGY:**

The study employed a cross-sectional design to investigate the factors influencing overall satisfaction among a cohort of 150 graduates from a university, spanning the years 2020 and 2021. The structured questionnaire, a key instrument in this study, was meticulously designed to capture a comprehensive range of information vital to understanding the factors influencing graduates' overall satisfaction. The demographic section of the questionnaire gathered details on age, gender, year of graduation, and marital status, providing a robust foundation for subsequent analyses. To delve deeper into the nuanced aspects of satisfaction, the survey included sections dedicated to overall satisfaction and specific domains, namely clinical experience, educational resources, and work-life balance. The carefully crafted questions were formulated to elicit nuanced responses, allowing participants to articulate their experiences and perceptions. The questionnaire was administered electronically, ensuring efficient data collection while maintaining participant privacy and anonymity. These methodological choices were made with the goal of eliciting comprehensive and reliable responses, contributing to a robust analysis of the factors influencing overall satisfaction among the surveyed graduates. Ethical considerations were prioritized, with informed consent and assurances of confidentiality. Descriptive statistics summarized demographic characteristics and overall satisfaction levels, while inferential statistics compared satisfaction levels between the two graduation years. Regression analysis identified factors influencing overall satisfaction, and correlation analysis investigated relationships among satisfaction dimensions. The study acknowledged limitations, such as reliance on self-reported data and the context-specific nature of the institution. Data analysis was conducted using STATA with a significance level set at  $p < 0.05$ . Findings were reported using tables and providing a thorough understanding of the research design, data collection, and analysis processes.

### **RESULTS:**

The demographic table summarizes key characteristics of a cohort of 150 graduates. The mean age of the

graduates is 30.5 years, with a standard deviation of 2.3 years, indicating a relatively homogeneous age distribution. In terms of gender distribution, 60% of the graduates are male, while 40% are female. Regarding the year of graduation, 2020 and 2021 account for 79 and 71

graduates, respectively. The marital status of the cohort reveals that a majority of graduates are single (53.33%), followed by married individuals (43.33%), and a smaller proportion who are divorced (6.66%).

**Table 1: Demographic table**

Variables	Frequency (%)
<b>Total no. of graduates</b>	150 (100.00%)
<b>Mean age (SD)</b>	30.5 (2.3)
<b>Gender</b>	
Male	90 (60.00%)
Female	60 (40.00%)
<b>Year of graduation</b>	
2020	79
2021	71
<b>Marital status</b>	
Single	80 (53.33%)
Married	65 (43.33%)
Divorced	10 (6.66%)

A comparative analysis of satisfactory levels among graduates from the years 2020 and 2021 reveals nuanced differences in various aspects. Overall satisfaction scores for the two cohorts show a marginal distinction, with 2020 graduates reporting a mean score of 4.2 compared to 4.0 for the 2021 graduates. However, this difference did not reach statistical significance, as indicated by a p-value of 0.12. Examining specific domains, 2020 graduates reported higher mean scores for clinical experience (4.3) compared to their 2021 counterparts

(4.1), with a p-value of 0.08. Educational resources and work-life balance also exhibited differences, with 2020 graduates scoring slightly higher (4.0 and 3.9, respectively) compared to the 2021 graduates (3.8 and 4.2, respectively). While these variations did not achieve statistical significance (p-values of 0.20 and 0.15, respectively), the trends suggest potential areas for further investigation and improvement in educational and work-related experiences across the two graduation years (table 2).

**Table 2: Comparison of satisfactory levels by years of graduation**

Satisfactory levels	2020 graduates (mean score)	2021 graduates (mean score)	p-value
Overall satisfaction	4.2	4.0	0.12
Clinical experience	4.3	4.1	0.08
Educational resources	4.0	3.8	0.20
Work life balance	3.9	4.2	0.15

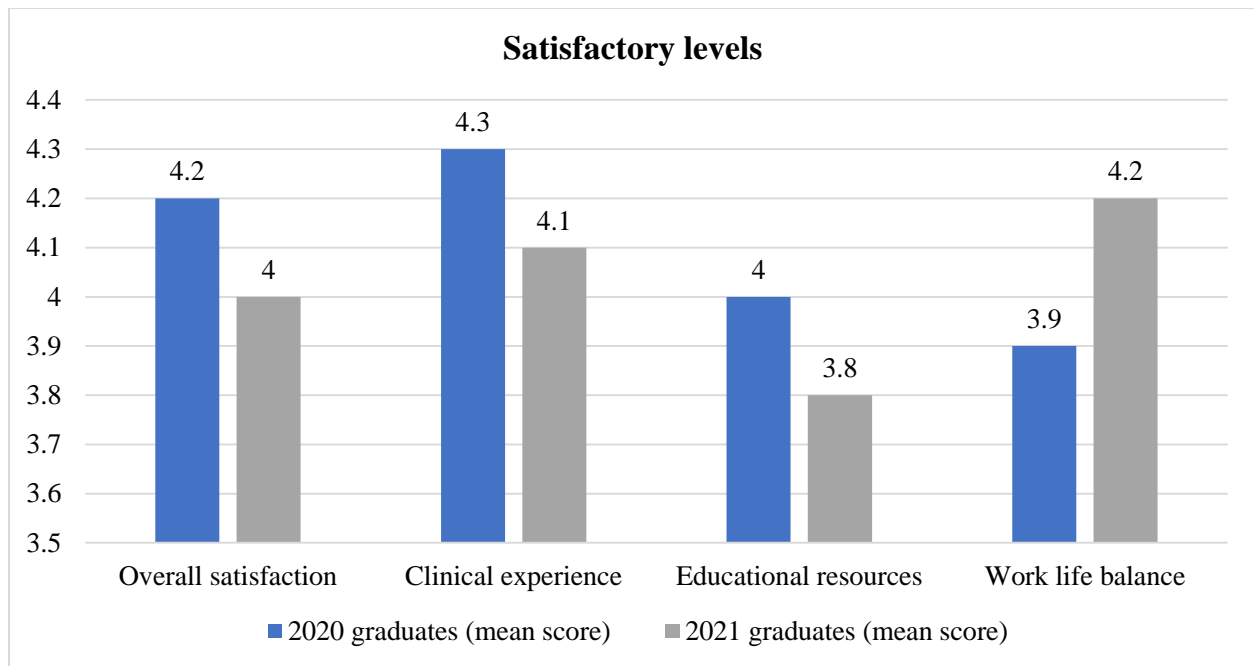


Table 3 provides a detailed breakdown of the overall satisfaction levels reported by respondents. A notable 29.33% of the participants expressed being "very satisfied," constituting a significant portion of the cohort. The majority of respondents, comprising 47.33%, reported being "satisfied" with their experiences. A smaller proportion, 12.66%, maintained a "neutral" stance, while 6.00% expressed "dissatisfaction" and 4.66% reported being "very dissatisfied." These findings

illuminate a generally positive sentiment among the surveyed individuals, with a substantial number expressing high levels of satisfaction. However, the presence of respondents with neutral or negative sentiments underscores the importance of addressing diverse perspectives and potential areas for improvement to enhance overall satisfaction within the studied population.

**Table 3: Frequency of responses to overall satisfaction**

Satisfaction level	Number of respondents (%)
Very satisfied	44 (29.33%)
Satisfied	71 (47.33%)
Neutral	19 (12.66%)
Dissatisfied	09 (6.00%)
Very dissatisfied	07 (4.66%)

Table 4 presents the regression analysis results, identifying factors influencing overall satisfaction among the surveyed participants. Clinical experience emerged as a significant positive predictor, with a coefficient of 0.32, a standard error of 0.08, and a highly significant p-value of less than 0.001. This indicates that an increase in clinical experience is associated with a notable positive impact on overall satisfaction. Educational resources also demonstrated a positive influence, with a coefficient of 0.15, a standard error of 0.07, and a p-value of 0.042, suggesting a statistically

significant relationship between improved educational resources and higher overall satisfaction. Conversely, work-life balance emerged as a negative predictor, as reflected by a coefficient of -0.25, a standard error of 0.10, and a p-value of 0.011. This implies that a perceived imbalance in work-life harmony is associated with lower overall satisfaction. These results provide valuable insights into the specific factors that play a pivotal role in shaping the overall satisfaction levels of the surveyed individuals, offering potential areas for targeted interventions and improvements.

**Table 4: Factors influencing overall satisfaction**

Predictor value	Coefficient (Beta)	Standard error	P-value
Clinical experience	0.32	0.08	<0.001
Educational resources	0.15	0.07	0.042
Work life balance	-0.25	0.10	0.011

Table 5 presents a correlation matrix examining the relationships among various aspects of satisfaction, providing insights into the interplay between these factors. The diagonal entries represent the correlation of each aspect with itself, reflected as a perfect correlation of 1.000. Notably, overall satisfaction demonstrates a moderate positive correlation with clinical experience ( $r = 0.56$ ) and a weaker positive correlation with educational resources ( $r = 0.34$ ). Conversely, there is a moderate negative correlation between overall satisfaction and work-life balance ( $r = -0.42$ ), suggesting

that as work-life balance decreases, overall satisfaction tends to decrease as well. The correlation matrix further reveals associations between different aspects, such as the positive correlation between clinical experience and educational resources ( $r = 0.46$ ). These correlation coefficients provide a quantitative understanding of the relationships between satisfaction dimensions, aiding in the identification of potential areas of synergy or conflict that can inform targeted strategies for enhancing overall satisfaction among the surveyed individuals.

**Table 5: Correlation Matrix of Satisfaction Aspects**

	Overall Satisfaction	Clinical Experience	Educational Resources	Work-Life Balance
Overall Satisfaction	1.000	0.56	0.34	-0.42
Clinical Experience	0.56	1.000	0.46	0.28
Educational Resources	0.34	0.45	1.000	0.15
Work-Life Balance	-0.42	0.28	0.15	1.000

## **DISCUSSION:**

The study's findings, which comprised a cohort of 150 graduates, offer a thorough picture of their happiness levels, demographics, and other aspects that affect their general level of contentment. With a mean age of 30.5 years, the graduates' age distribution is rather uniform, and their gender distribution shows that 60% of them are men and 40% are women. The majority are single (53.33%), married people (43.33%), and divorced people (6.66%) make up the next smaller number. There were 79 and 71 graduates in 2020 and 2021, respectively, according to a thorough breakdown of graduates by year of graduation. There are subtle variations between the 2020 and 2021 cohorts when comparing their satisfaction levels. Although there is just a slight difference in overall satisfaction scores, there are differences in particular areas including work-life balance, clinical experience, and educational resources.

The satisfaction of ophthalmology residents with their training programs across several regions, including Saudi Arabia and the United Arab Emirates (UAE), was determined in another survey conducted in the UAE. A cross-sectional survey conducted in Saudi Arabia revealed regional differences in the overall satisfaction of locals practicing ophthalmology, with the Riyadh region reporting a higher level of satisfaction (79.4%) than the Eastern and Western regions (28.6% and 23.1%, respectively). (Alkatan, AlEnezi, Tabbara, Al-Othman, & AlFawaz, 2021) Ophthalmology residents reported high levels of satisfaction with their training programs, according to another survey conducted in Saudi Arabia. 89.1% of recent graduates said they were very or extremely satisfied with their acquisition of clinical knowledge, and 93.4% said the same about their learning of surgical abilities. (Millán & de Carvalho, 2013) Similar to our result another survey reported an 82.8%

response rate (120 out of 145 invitees), 50% said they were satisfied with the program overall. Except for refraction (55.8%) and low vision rehabilitation (95.8%), most subspecialties had adequate clinical exposure. Only phacoemulsification (58.3%) and strabismus surgery (68.3%) required surgical exposure. Notably, 89% said they had performed fewer than 80 phacoemulsification procedures. While 89.7% passed the board test on the first try, residency training prepared 73.5%. Ongoing clinical and call responsibilities were mentioned as having a detrimental impact on exam performance, indicating possible areas for improvement in the program (AlEnezi et al., 2019). Our study reported overall satisfaction breakdown shows that respondents are usually feeling good, with 29.33% reporting that they are "very satisfied" and 47.33% reporting that they are "satisfied." Nonetheless, 12.66% take a "neutral" position, stressing the significance of considering other points of view. Work-life balance is found to be a negative predictor of overall satisfaction, but clinical experience and educational resources are good indicators according to regression analysis. There are no recent studies in the UAE evaluating the satisfaction of ophthalmology residents with their training programs. A research conducted in the United States, however, discovered that the majority of ophthalmology residents were content with their residency programs, with 48.7% being "very satisfied" and 44.8% being "satisfied." (Abdelfattah et al., 2016). Similarly, Brazilian ophthalmology residents and UNICAMP grads were quite pleased with their residency training programs (Guimaraes, Amaral, & Carvalho, 2023). Furthermore, a study conducted in India observed that freshly graduating ophthalmologists reported a strong need for extra training, with 35% reporting adequate clinical training in all ophthalmology subspecialties (Guimaraes et al., 2023). The key findings of this study showed that the links between the satisfaction components are revealed by the correlation matrix. There is a weaker positive link with educational resources and a moderate positive correlation with clinical experience when it comes to overall satisfaction. On the other hand, there is a somewhat negative link between work-life balance and overall satisfaction. Relationships between various elements, like the one that shows a favorable association between clinical experience and learning materials, offer information for focused treatments. Overall, recent ophthalmology residency graduates appear to have a generally good attitude on their training experience, while specific areas of inadequacy have been highlighted in some studies. Based on the existing evidence, three recommendations are made to improve satisfaction with ophthalmology residency training in Saudi Arabia's Riyadh region:

### **1) Training Program Standardization:**

There is a need to standardize ophthalmology residency training programs across Saudi Arabia, with an emphasis on delivering consistent and high-quality training experiences. This can assist resolve the study's findings about regional differences in resident satisfaction levels. Standardization can be accomplished by implementing consistent curriculum guidelines, training practices, and assessment methodologies.

### **2) Enhanced Surgical Training:**

According to the findings, efforts should be aimed toward increasing surgical training in order to increase overall satisfaction among ophthalmology residents. This can be accomplished by increasing residents' surgical exposure, giving them access to modern surgical procedures, and providing them with mentorship from experienced ophthalmic surgeons. Furthermore, assessing the surgical criteria and abilities of residency programs might aid in identifying particular areas for improvement in surgical training.

### **3) Mechanisms for Regular Program Evaluation and Feedback:**

Establishing a rigorous mechanism for regular evaluation of ophthalmology residency programs, as well as soliciting feedback from residents, might be advantageous. This can aid in identifying areas of strength and weakness within training programs and allowing for timely interventions to improve overall training quality. Surveys, focus group discussions, and structured exit interviews with graduating residents are examples of feedback systems.

### **CONCLUSION:**

We conclude that this study evaluates how satisfied recent graduates in the Riyadh region are with their ophthalmology residency training among 2020 graduates compared to the 2021 graduates, providing important information for program improvement. The results emphasize the necessity of focused enhancements, stressing the importance of customized mentorship programs, curriculum modifications that take into account local healthcare quirks, and the creation of strong feedback systems. Residency programs in ophthalmology in Riyadh can create a more favorable and stimulating training environment by putting these suggestions into practice. Elevating resident satisfaction and advancing professional progress and the improvement of ophthalmic healthcare practices in the region can be achieved by prioritizing mentorship, curriculum relevance, and clear communication channels. These improvements are essential to ensure that the medical field is continuously improved.

### **ACKNOWLEDGMENT:**

The authors are thankful to the Dean, Vice-Dean and the Head of the department of Shaqra University, Kingdom of Saudi Arabia for giving us the opportunity to do this study.

### **STATEMENT OF ETHICS:**

This study protocol was reviewed and approved by Chairman of the local committee of Research Ethics in Shaqra University. Approval no -HAPO-01-R-128.

### **CONSENT TO PARTICIPATE STATEMENT:**

This study has been granted an exemption from requiring written informed consent by of Research Ethics in Shaqra University as it is a questionnaires-based study.

### **CONFLICTS OF INTEREST STATEMENT:**

The authors have no conflict of interest

### **FUNDING SOURCES:**

This research didn't receive grants from any funding agency in the public, commercial or not-for-profit sectors.

### **DATA AVAILABILITY STATEMENT:**

All data generated or analyzed during this study are included in this article. Further enquires can be directed to the corresponding authors.

### **REFERENCES:**

1. Abdelfattah, Nizar Saleh, Radwan, Ahmed E, & Sadda, Srinivas R %J Journal of current ophthalmology. (2016). Perspective of ophthalmology residents in the United States about residency programs and competency in relation to the International Council of Ophthalmology guidelines. 28(3), 146-151.
2. Abràmoff, Michael D, Folk, James C, Lee, Andrew G, Beaver, Hilary A, Boldt, H Culver %J Ophthalmic Surgery, Lasers, & Retina, Imaging. (2008). Teaching and assessing competency in retinal lasers in ophthalmology residency. 39(4), 270-280.
3. AlEnezi, Saad H, Alfawaz, Abdullah M, Al Owaifeer, Adi Mohammed, Althiabi, Saad M, Tabbara, Khalid F %J Journal of Medical Education, & Development, Curricular. (2019). Assessment of ophthalmology residency programs in Saudi Arabia: A trainee-based survey. 6, 2382120519855060.
4. Alkatan, Hind M, AlEnezi, Saad H, Tabbara, Khaled F, Al-Othman, Ahmed Y, & AlFawaz, Abdullah M %J Saudi Journal of Ophthalmology. (2021). Variability of ophthalmology residents' perception toward different major training programs in Saudi Arabia. 35(4), 310.
5. Choudhry, Hassaam S, Patel, Aman M, Tailor, Priya, Kumarapuram, Siddhant, Patel, Riya H, Guttikonda, Sri, . . . Kaleem, Mona A %J Journal of Academic Ophthalmology. (2023). Impact of Gap Years Following Medical School Graduation on Resident Research Productivity in Ophthalmology. 15(02), e178-e183.
6. Duong, Andrew T, Van Tassel, Sarah H, Fernandez, Ana G Alzaga, Amin, Abha, Chadha, Nisha, Glass, Lora R Dagi, . . . Elkin, Zachary P %J Ophthalmology. (2020). Medical education and path to residency in ophthalmology in the COVID-19 era: perspective from medical student educators. 127(11), e95-e98.
7. Guimaraes, Aron Barbosa Caixeta, Amaral, Eliana, & Carvalho, Keila Monteiro %J BMC Medical Education. (2023). Curriculum satisfaction of graduates of medical residency in ophthalmology. 23(1), 403.
8. Lee, Andrew G, Greenlee, Emily, Oetting, Thomas A, Beaver, Hilary A, Johnson, A Tim, Boldt, H

- Culver, . . . Carter, Keith %J *Ophthalmology*. (2007). The Iowa ophthalmology wet laboratory curriculum for teaching and assessing cataract surgical competency. *114*(7), e21-e26.
9. Millán, Tatiana, & de Carvalho, Keila Monteiro %J *BMC medical education*. (2013). Satisfaction with ophthalmology residency training from the perspective of recent graduates: a cross-sectional study. *13*(1), 1-5.
  10. Shuttleworth, GN, & Marsh, GW %J *Eye*. (1997). How effective is undergraduate and postgraduate teaching in ophthalmology? , *11*(5), 744-750.
  11. Villar, Maria Auxiliadora Monteiro, & Cardoso, Maria Helena Cabral de Almeida %J *Cadernos de Saúde Pública*. (2002). Medical residence in pediatrics: in the field of practice. *18*, 329-339.
  12. Yousuf, Salman J, Kwagyan, John, & Jones, Leslie S %J *Ophthalmology*. (2013). Applicants' choice of an ophthalmology residency program. *120*(2), 423-427.