



## STRESS INDEX AND SATISFACTION LEVEL RELATED TO RESIDENCY PRESENT AMONG YEAR THREE AND YEAR FOUR RESIDENTS OF ORAL MAXILLOFACIAL SURGERY IN KARACHI

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### ABSTRACT

**Objective:** To determine the stress and satisfaction level related to residency present among third and fourth year residents of oral maxillofacial surgery in Karachi.

**Methodology:** The study was cross-sectional, conducted at all the institutes offering FCPS residency in oral maxillofacial surgery department. In total 48 residents participated in this study. After taking the consent, online google form questionnaire was shared to all the participants. The data was analyzed using SPSS version 23.

**Results:** Among 48 participants, 62.5% were female and 54.2% were married. Most were from urban areas and government institutions, with Abbasi Shaheed Hospital most represented. While 85.4% received stipends, only 35.4% received them on time. Third-year residents showed higher stress levels than fourth-years, though both reported overall satisfaction. Stress was significantly associated with gender. Residency year negatively correlated with both stress and satisfaction; institutional affiliation correlated positively with stress and negatively with satisfaction, though not significantly.

**Conclusion:** In conclusion, this study provides valuable initial evidence on the psychological well-being of OMFS residents in Karachi. While it identifies key areas of concern, especially for R3 residents and female trainees, it also shows encouraging levels of satisfaction among residents. With further research and systemic reforms, residency programs can become more supportive, sustainable, and conducive to both professional growth and personal well-being.

**Key words:** stress level, satisfaction level, residents, oral maxillofacial surgery

## INTRODUCTION

The specialty of oral maxillofacial surgery (OMFS) is different from others. While OMFS is a dental specialty in many nations, its practice area greatly overlaps with other specialties such as orthopedics, plastic surgery, head and neck surgery, and otolaryngology. OMF surgery is therefore a genuine fusion of dental and medical expertise(1). The residency training requires physical, emotional and cognitive effort. The pressure of clinical responsibilities, academic requirements, long working hours and performance leads to higher levels of stress and burnout (2).

Stress among medical and dental residents has been widely recognized as a factor that can negatively affect mental health, job performance, and overall satisfaction with training(3). If a situation is evaluated as overwhelming, uncontrollable and impossible to cope with, distress inevitably occurs(4). Recently, a study reported on the enormous amount of burnout of trainees in orthopedics in the U.S. Relevant reasons were a workload over 80 h per week and often verbal abuse from the faculty. Overall, burnout is found in high frequencies across numerous medical fields in trainees and is observed in trainees of other Head and Neck specialties(5). The third and fourth years of residency are particularly challenging, as trainees transition from supervised learning to more autonomous decision-making and operative responsibility. Several studies have demonstrated that high levels of stress are experienced by medical and surgical residents, which frequently leads to burnout, emotional exhaustion, and decreased work satisfaction. This level of stress has an impact on the resident's mental health as well as clinical judgement, academic performance, and the standard of patient care.

In Alkindi et al study the residents were often nervous or stressed (37.3%)(6). In Siddiqui et al study the prevalence of perceived stress was 86% (7). In Abdo et al study satisfaction rate was not that good (8). Although few single-center studies have been done in different parts of Pakistan there is currently very limited published data on the Stress index and satisfaction level related to residency present among year three and year four residents of oral and maxillofacial surgery in Karachi. Therefore, the purpose of this study was to increase awareness among oral and maxillofacial surgery staff by determining the stress index and degree of satisfaction associated with residency among third and fourth year residents.

## Objective

To determine the stress and satisfaction level related to residency present among third and fourth year residents of oral maxillofacial surgery in Karachi

## METHODOLOGY

This study was cross-sectional conducted at all the institutes of Karachi which are offering FCPS residency in oral maxillofacial surgery. The sample size was calculated from Open.epi using formula  $n = z^2 p (1-P) / d^2$ . The calculated sample size was forty-eight (48). The study duration from November 2024 to April 2025. All the samples collected were through non-probability consecutive sampling.

### ❖ Inclusion criteria:

- Residents of either gender aged 25-40 years
- Residents of R3 and R4 of oral maxillofacial surgery department

### ❖ Exclusion criteria:

- Residents with >40 years of age
- Residents who breach the contract
- Residents of any other department

Informed consent was secured from all the participants, who meet the inclusive criteria. The online questionnaire was made on google forms and link was shared to all the study participants acquiring

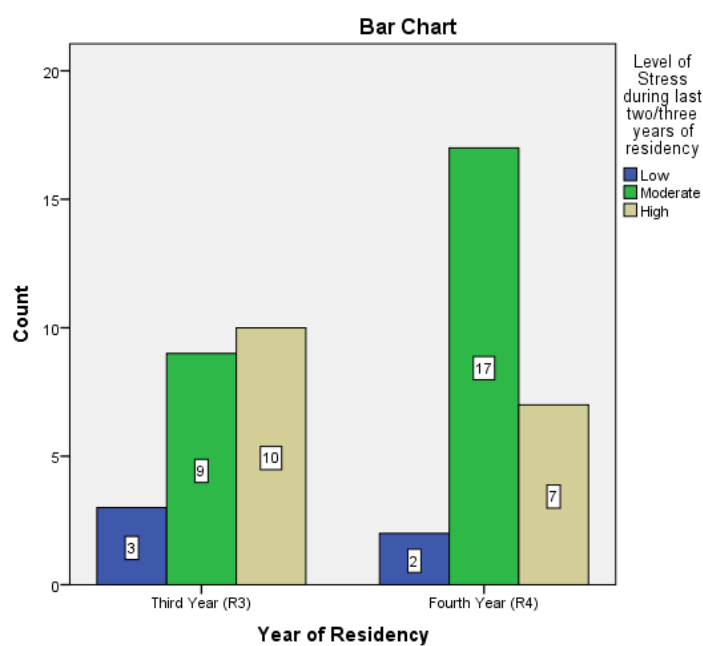
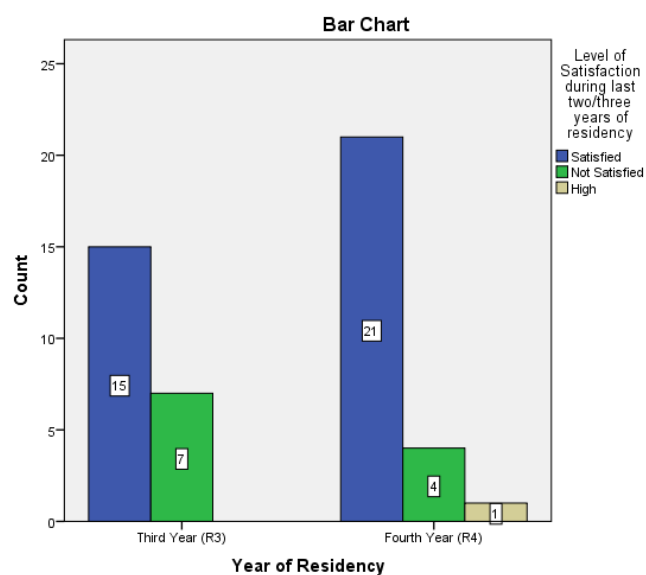
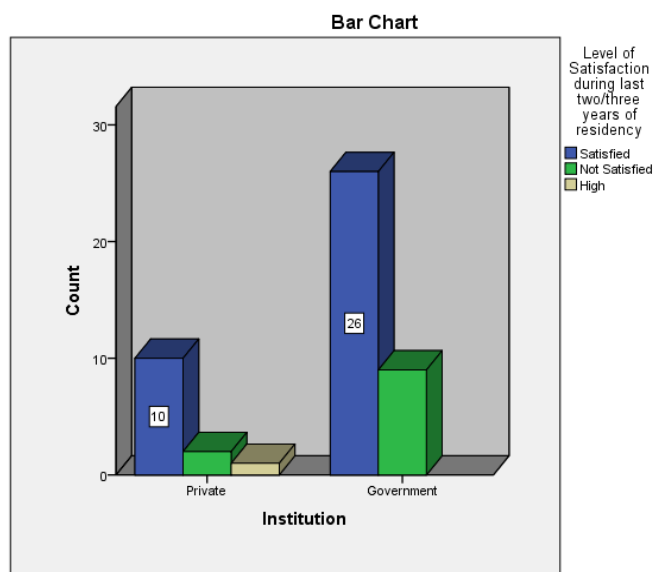
the demographic data, stress and satisfaction level during the residency. Once all the data was collected the data was analyzed using SPSS version 23. The frequency distribution was done for all the demographics. The mean comparison was done using ANOVA and post Hoc between demographics and stress and satisfaction markers. The correlation was checked using Pearson correlation to check the relation between stress and satisfaction level and year of residency and institute.

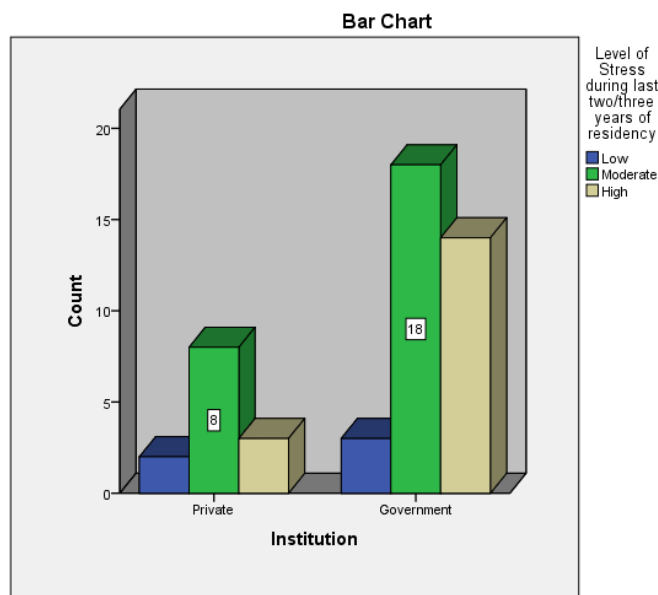
## RESULTS

In total 48 residents participated in this study of which 62.5% were females and 37.5% were married. Most of them were from urban residence. Majority of the participants were from government institute amongst which Abbasi Shaheed Hospital has highest number of residents. Almost 85.4% participants were getting stipend of which 35.4% participants gets their stipend on time. The detailed demographics is mention in table 1. Figure 1 showing bar charts for stress and satisfaction level. The residents from government institute showed higher stress level and were satisfied from their institution. The R3 residents has higher stress levels in all three categories (low, moderate, high) compared to R4 residents. However, both R3 and R4 were mostly satisfied from their residencies. The mean comparison between the demographics and different stress and satisfaction markers was done through t-test and one way ANOVA. The level of stress and gender showed statistically significant results. The detailed discussion is mentioned in table 3. Post Hoc analysis of level of stress was done and mentioned in table 4. Six out of ten questions used as marker for stress and satisfaction showed statistically significant results when groups with low to high or moderate to high stress levels. The pearson co-efficient of correlation was done between year of residency and institute and stress and satisfaction levels. The year of residency showed negative correlation with both stress and satisfaction levels indicating that stress and satisfaction decreases with increase of year of residency. However, institution in which the participant was enrolled showed positive correlation with stress levels and negative correlation with satisfaction levels. The p-value for both is not statistically significant.

**Table 1: Frequency Distribution of demographics of study participants (n=48)**

| Variable                     | Classification                                      | n (%)      |
|------------------------------|---|------------|
| Gender                       | Male  | 18 (37.5%) |
|                              | Female  | 30 (62.5%) |
| Marital Status               | Married   | 26 (54.2%) |
|                              | Unmarried   | 22 (45.8%) |
| Place of Residence           | Rural   | 17 (35.4%) |
|                              | Urban   | 31 (64.6%) |
| Institution                  | Private   | 13 (27.1%) |
|                              | Government  | 35 (72.9%) |
| Institute of Post-Graduation | Abbasi Shaheed Hospital                             | 18 (37.5%) |
|                              | Jinnah Post Graduate Medical Center                 | 8 (16.7%)  |
|                              | Shaheed Mohtarma Benazir Bhutto Institute of Trauma | 9 (18.8%)  |
|                              | Dow University of Health Sciences                   | 5 (10.4%)  |
|                              | Ziauddin University                                 | 4 (8.3%)   |
|                              | Liaquat National Hospital                           | 1 (2.1%)   |
|                              | PNS Shifa   | 1 (2.1%)   |
|                              | Liaquat College of Medicine and Dentistry           | 2 (4.2%)   |
| Year of Residency            | Third Year (R3)                                     | 22 (45.8%) |
|                              | Fourth Year (R4)                                    | 26 (54.2%) |
| Stipend                      | Paid  | 41 (85.4%) |
|                              | Unpaid  | 7 (14.6%)  |





**Figure 1: The bar chart showing comparison of level of stress and satisfaction among year of residency (R3 and R4) and institution (private and government).**

**Table 2: Mean comparison of demographic variables with different stress and satisfaction markers**

| Stress and Satisfaction Markers  | Variable              | p-value           |
|--|-----------------------|-------------------|
| In last six months, how often have you been upset because of something that happened unexpectedly? | Gender                | <b>0.035*</b>     |
|  | Marital Status        | 0.249             |
|  | Institution           | 0.214             |
|  | Year of Residency     | 0.773             |
|  | Level of stress       | <b>2.3132E-7*</b> |
|  | Level of satisfaction | <b>0.004*</b>     |
| In last six months, how often have you felt that you were unable to control the important things?  | Gender                | <b>0.006*</b>     |
|  | Marital Status        | 0.206             |
|  | Institution           | 0.290             |
|  | Year of Residency     | 0.439             |
|  | Level of stress       | <b>0.033*</b>     |
|  | Level of satisfaction | 0.097             |
| In last six months, how often have you felt nervous and stressed?                                  | Gender                | <b>0.050*</b>     |
|  | Marital Status        | 0.155             |
|  | Institution           | 0.114             |
|  | Year of Residency     | 0.922             |
|  | Level of stress       | <b>0.000035*</b>  |
|  | Level of satisfaction | <b>0.012*</b>     |
| In last six months, how often have you felt confident about your ability to handle your problems?  | Gender                | 0.691             |
|  | Marital Status        | 0.637             |
|  | Institution           | 0.866             |
|  | Year of Residency     | 0.966             |
|  | Level of stress       | 0.471             |
|  | Level of satisfaction | <b>0.059*</b>     |
| In last six months, how often have you felt things were going your way?                            | Gender                | 0.395             |
|  | Marital Status        | 0.311             |
|  | Institution           | 0.381             |
|  | Year of Residency     | 0.647             |
|  | Level of stress       | 0.536             |
|  | Level of satisfaction | 0.077             |
| In last six months, how often have you found   | Gender                | <b>0.042*</b>     |

|   |  |  |
|---|--|--|
| that you could not cope with all the things you have to do?   | Marital Status<br>Institution<br>Year of Residency<br>Level of stress<br>Level of satisfaction           | 0.100<br>0.098<br>0.410<br><b>0.005*</b><br>0.077                          |
| In last six months, how often have you been unable to control irritations in your life?                           | Gender<br>Marital Status<br>Institution<br>Year of Residency<br>Level of stress<br>Level of satisfaction | 0.437<br>0.401<br>0.511<br>0.508<br><b>0.008*</b><br>0.239                 |
| In last six months, how often have you felt that you were on top of things?                                       | Gender<br>Marital Status<br>Institution<br>Year of Residency<br>Level of stress<br>Level of satisfaction | 0.704<br>0.078<br>0.602<br>0.462<br>0.318<br>0.157                         |
| In last six months, how often have you been angered because of things that were outside of your control?          | Gender<br>Marital Status<br>Institution<br>Year of Residency<br>Level of stress<br>Level of satisfaction | 0.205<br>0.082<br><b>0.016</b><br>0.430<br><b>0.009*</b><br>0.079          |
| In last six months, how often have you felt difficulties were piling up so high that you could not overcome them? | Gender<br>Marital Status<br>Institution<br>Year of Residency<br>Level of stress<br>Level of satisfaction | <b>0.024*</b><br>0.208<br>0.130<br>0.437<br><b>0.001*</b><br><b>0.034*</b> |

\*P-value less than or equal to 0.05 is considered statistically significant

**Table 3: Post Hoc Comparison of level of stress and stress and satisfaction markers**

| Stress and Satisfaction Markers  | Level of Stress        |                          | p-value                                       |
|--|------------------------|--------------------------|---|
| In last six months, how often have you been upset because of something that happened unexpectedly?       | Low<br>Low<br>Moderate | Moderate<br>High<br>High | 0.086<br><b>0.000006*</b><br><b>0.000005*</b> |
| In last six months, how often have you felt that you were unable to control the important things?        | Low<br>Low<br>Moderate | Moderate<br>High<br>High | 0.320<br><b>0.039*</b><br>0.166               |
| In last six months, how often have you felt nervous and stressed?  | Low<br>Low<br>Moderate | Moderate<br>High<br>High | 0.366<br><b>0.001*</b><br><b>0.000185*</b>    |
| In last six months, how often have you felt confident about your ability to handle your problems?        | Low<br>Low<br>Moderate | Moderate<br>High<br>High | 0.846<br>0.518<br>0.623                       |
| In last six months, how often have you felt things were going your way?                                  | Low<br>Low<br>Moderate | Moderate<br>High<br>High | 0.585<br>0.878<br>0.728                       |
| In last six months, how often have you found that you could not cope with all the things you have to do? | Low<br>Low<br>Moderate | Moderate<br>High<br>High | 0.081<br><b>0.004*</b><br>0.109               |

|   |                        |                          |   |
|---|------------------------|--------------------------|---|
| In last six months, how often have you been unable to control irritations in your life?                           | Low<br>Low<br>Moderate | Moderate<br>High<br>High | 0.997<br>0.155<br><b>0.007*</b>         |
| In last six months, how often have you felt that you were on top of things?                                       | Low<br>Low<br>Moderate | Moderate<br>High<br>High | 0.320<br>0.645<br>0.691                 |
| In last six months, how often have you been angered because of things that were outside of your control?          | Low<br>Low<br>Moderate | Moderate<br>High<br>High | 0.181<br>0.011<br>0.096                 |
| In last six months, how often have you felt difficulties were piling up so high that you could not overcome them? | Low<br>Low<br>Moderate | Moderate<br>High<br>High | 0.129<br><b>0.001*</b><br><b>0.011*</b> |

\*P-value less than or equal to 0.05 is considered statistically significant

**Table 3: Co-efficient of correlation (Pearson) between stress and satisfaction levels and year of residency and institution**

|                          |                 |                       |
|--------------------------|-----------------|-----------------------|
| Year of Residency        | Level of Stress | Level of Satisfaction |
| Correlation co-efficient | -0.100          | -0.089                |
| p-value                  | 0.500           | 0.547                 |
| Institution              | Level of Stress | Level of Satisfaction |
| Correlation co-efficient | 0.168           | -0.046                |
| p-value                  | 0.255           | 0.757                 |

\*P-value less than or equal to 0.05 is considered statistically significant

## DISCUSSION

This study provides a comprehensive analysis of stress and satisfaction levels among third and fourth year oral maxillofacial surgery (OMFS) residents in Karachi. The findings reveal significant insights into the psychological well-being and job satisfaction of these residents, with implications for residency program structures and support systems. Among the 48 participants, a majority (62.5%) were female, and over half were married. Most residents hailed from urban areas and were affiliated with government institutions, notably Abbasi Shaheed Hospital. While 85.4% received stipends, only 35.4% reported timely disbursement. These demographic patterns align with the broader trends observed in Pakistani dental education, where urban residency and public institution affiliation are common among postgraduate trainees. The study highlights a concerning prevalence of stress among OMFS residents, particularly those in government institutions compared to other studies(2). Third-year residents (R3) exhibited higher stress levels across all categories (low, moderate, high) compared to fourth-year residents (R4). This trend suggests that the initial years of advanced surgical training may be more demanding.

These findings are consistent with previous research indicating high stress levels among dental professionals in Karachi(7). A study reported that 86% of practicing dentists experienced moderate stress levels, with junior professionals reporting higher stress compared to their senior counterparts(7). Despite the high stress levels, both R3 and R4 residents reported general satisfaction with their residency programs. Interestingly, residents from government institutions, despite experiencing higher stress, also reported higher satisfaction levels. However, the delayed stipend distribution reported by a significant portion of residents could be a source of dissatisfaction. Financial instability can exacerbate stress and may impact residents' overall well-being and performance(9).

The study found a statistically significant association between stress levels and gender, with female residents reporting higher stress levels. This aligns with international research indicating that female

OMFS residents often experience greater stress and lower job satisfaction compared to their male counterparts. Factors contributing to this disparity may include work-life balance challenges, societal expectations, and potential gender biases within the surgical field. On the other hand, the positive correlation between institutional affiliation and stress levels, and the negative correlation with satisfaction levels, suggest that institutional factors play a significant role in residents' psychological well-being. The findings of this study are in line with previous research conducted in Pakistan and internationally. The study assessing stress among dental students in Islamabad reported that 86% experienced moderate stress levels, with frequent exams and study pressure being significant contributors(10). Another study focusing on anxiety among OMFS postgraduate trainees in Pakistan highlighted the high-risk nature of surgical procedures and academic pressures as key stressors(2).

Furthermore, the high levels of stress and the factors contributing to dissatisfaction among OMFS residents necessitate targeted interventions. Residency programs should consider implementing structured mentorship programs, providing psychological support services, and ensuring timely financial remuneration. Additionally, fostering an inclusive and supportive work environment can help mitigate gender disparities in stress and satisfaction levels.

One of the main strengths of this study is its focus on a highly specific and under-researched group: third- and fourth-year residents in oral and maxillofacial surgery in Karachi. Moreover, the study highlights both stress and satisfaction levels, which offers a balanced view of resident experiences, rather than focusing solely on negative outcomes. This dual approach provides a fuller understanding of the resident experience. In future study should be done with a larger and more diverse sample from multiple cities or provinces would improve external validity and allow for more comprehensive comparisons. This study is cross-sectional, capturing a snapshot in time. This limits the ability to assess changes in stress and satisfaction over the course of the residency. A longitudinal design would be more informative in understanding how stress and satisfaction evolve as resident's progress through their training.

## CONCLUSION

This study sheds light on the significant stress experienced by OMFS residents in Karachi, particularly among third-year trainees and female residents. While overall satisfaction with residency programs remains relatively high, institutional factors such as delayed stipends and workload distribution contribute to stress and potential dissatisfaction. Addressing these issues through systemic reforms and support mechanisms is essential to enhance the well-being and professional development of OMFS residents.

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