Depressive Symptoms among Plastic Surgery Residents

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Background: A literature review did not reveal any study investigating the prevalence of depression among plastic surgery residents.

Methods: We conducted a cross-sectional mail survey and included all Saudi Plastic Surgery residents in our local program in Saudi Arabia. The Beck Depression Inventory II was used.

Results: The inventory showed that mild, moderate, and severe depressive symptoms were prevalent in 20.6%, 38.2%, and 11.8%, respectively. Junior residents were more prone to depression.

Conclusions: The high prevalence rate of depression among plastic surgery residents is alarming, and further studies are warranted. The problem has received no attention in the plastic surgery literature.

INTRODUCTION

It is well known that medical students, interns, and residents experience higher rates of depression than the general population. Mata et al. recently conducted a systematic review and meta-analysis and calculated the mean prevalence of depression among residents to be 28.8% (range, 20.9–43.2%). Most of the reported studies investigated the prevalence of depression among internal medicine residents or combined medical and surgical residents in their study populations. Depression among plastic surgery residents has not been specifically investigated.

In this article, we report on a cross-sectional study investigating the prevalence of depression among plastic surgery residents enrolled in the Saudi Plastic Surgery Program.

MATERIALS AND METHODS

An institutional review board approval was obtained from King Saud University (Project #E17-2293). This is a cross-sectional e-mail survey, and all plastic surgery residents enrolled in the Saudi Plastic Surgery Program in Riyadh (Saudi Arabia) were included (n = 39). The Beck Depression Inventory II (BDI-II) was used for data collection. The total score is 63. Mild, moderate, and severe depression is diagnosed when the score is 10–19, 20–29, and 30–63, respectively. We also added to the test questionnaire questions regarding level of residency, number of hours/week, number of night duties per month, and whether or not the resident was allowed to take the day off following the night duty. The test questionnaire was formulated using the Survey Monkey Web site and sent by e-mail to all residents. The survey was conducted during the second half of academic year (April 2017) to avoid the stress associated with entering a new level of training.

RESULTS

Of the 39 surveys, 34 were returned, giving a response rate of 87%. There were 19 men and 15 women. Only 32% of the residents were married. The majority of residents (73%) were below the age of 30 years. More than half of the residents (56%) reported working more than 60 hours per week, and 44% reported having more than 7 night duties per month. Only 11% of residents were all allowed to take the day off following the night duty.

The Depression Inventory showed that mild, moderate, and severe depressive symptoms were prevalent in 20.6%, 38.2%, and 11.8%, respectively. This meant that 70.6% of the residents showed depression symptoms.

We compared the rate of depression to the demographic data and residency level. In total, 56% of the depressed residents were male, and this was similar to the

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percentage of male participants of the survey (56% of participants were male); 34.8% of the depressed residents were married, and that was also similar to the percentage of the marital status of participants of the survey (32% of participants were married). The Saudi Plastic Surgery Program is a 6-year program (R1-R6), and Figure 1 shows the prevalence of depression among R1-R6 residents. The chart shows a trend of lower rates of depression in senior (R5, R6) residency.

**DISCUSSION**

After an extensive review of the literature, we could not find any studies that specifically investigated the prevalence of depression among plastic surgery residents. The overall prevalence of depression in our study (70.6%) is alarming and is much higher than the mean prevalence of 28.8% reported by Mata et al.² in their recent systematic review. Further studies are required to compare our prevalence to other international plastic surgery residency programs.

The high prevalence rate on our study and the lack of comparative studies required another literature review on the factors associated with depression among residents, and we have summarized these causes in Table 1. It is reasonable to believe that surgical residents are under more stress than medical residents. The systematic review of Mata et al.² and our review of the literature did not find any articles comparing the prevalence of depression in surgical versus medical residents. However, 1 study⁴ showed that the prevalence of “burnout” is much higher among surgical when compared with medical residents (58% versus 27%). “Burning out” is known to be associated with insomnia, suicidal ideation, and depression.⁴,⁵ We did not specifically investigate burnout in our study, which is measured using other inventories such as the Maslach Burnout Inventory.⁵ Long working hours (over 60–70 h/wk) are also known to be associated with high rates of depression, burning out, errors of prescribing wrong medication doses, and other medical errors during residency.⁶⁷ The stress of junior residency¹ and sleep deprivation⁸ are also associated with “depressive symptoms” (Table 1).

A high prevalence of depression is also associated with specific personalities and characters⁹ and in residents with emotional exhaustion.¹⁰ We did not investigate temperament and character of our residents, and such assessment requires other inventories such as the Temperament and Character Inventory. One study showed that residents with high “harm avoidance” and low “self-directedness” are more prone for depression.⁹

An American Foundation for Suicide Prevention evaluated physician depression and suicide tendency and concluded that lack of support and rough institutional policies were important predisposing factors.¹¹ Two studies⁶⁸ suggested that the female gender is a risk factor for depressive symptoms during residency. However, most other studies (and our study as well) did not find that gender is a factor.

Several studies¹²–¹¹ recommended preventive methods to decrease the prevalence rate of depression among residents such as reducing the number of working hours, giving the post-call day off, and calling for a shift in institutional policies to support residents. Furthermore, treatment is indicated in residents with depressive symptoms. An American Council of Review Committee of residents and fellows conducted an inquiry on resident’s wellness and depression.¹² The group recommended to increase the awareness of stress and depression during residency. They also recommended the promotion of a supportive culture and other measures to be taken by all stakeholders of postgraduate medical education.¹² Screening residents in-training for depressive symptoms may not be practical. However, “facilitated discussion group intervention” has been found effective to reduce the prevalence of burnout and depression among high risk junior residents.¹³ Residents with moderate-to-severe depression require formal psychiatric assessment and anti-depression medications.

An alarming finding was reported by Stoesser and Cobb¹⁴ who investigated depression among residents at the University of Utah: only 27% of residents with moderate to severe depression were receiving medications for their depression.

Our study has 2 main limitations: the small number and the use of self-data. Similar studies in other plastic surgery residency programs are also required for comparison.

The Saudi plastic surgery training program has unique characteristics that may raise the stress level among residents. The program is the only postgraduate plastic surgery program in the country. Of the several hundred candidates applying every year, only 6–7 residents are accepted. The program is under the supervision of the “Saudi Commission for Heath Specialties.” The promotion to a subsequent residency level (i.e., R1 to R2, R2 to R3, and so on) depends on 2 factors: the yearly evaluation (from the clinical rotations) and passing the yearly examination (the pass mark is 60%). The program’s policies do not allow the promotion of a resident if he/she fails the examination, even if the yearly evaluation is satisfactory, or if the program director is happy with the resident’s attitude, clinical performance, and technical skills. This yearly examination “phobia” may increase stress levels, especially
among junior residents. The yearly examination is uniform for all residents, regardless of their level of training. Examination questions include the entire curriculum of plastic surgery. Hence, it is relatively more difficult for junior residents. The program director (1 of the co-authors) has supervised the study, and suggestions are being made to make 2 sets of examinations, 1 for junior and 1 for senior residents. Another suggestion that is being made is psychiatric assessment of the residents and treatment of depression if required. We also plan to repeat the study in a few years, after the implementation of these suggestions.

In conclusion, the high prevalence rate of depressive symptoms among plastic surgery residents is alarming, and further studies are warranted. The problem has received no attention in the plastic surgery literature.

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