Original Article :

Prevalence and Severity of Imposter Syndrome among Surgical and Medical Residents in Makkah, Saudi Arabia

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Abstract

Background & Aims:

Imposter syndrome (IS) is defined by a persistent feeling of self-doubt combined with fear of being exposed as a fraud, despite objective measures of success, which threatens mental health and well-being. The prevalence and severity of IS have not been studied among surgical and medical residents on a large scale. Therefore, the primary objective of this study was to assess the prevalence and severity of IS among surgical and medical residents in Makkah hospitals, Saudi Arabia.

Methods:

A retrospective cross-sectional study was performed by using the Clance Imposter Phenomenon Scale (CIPS) on surgical and medical residents in Makkah hospitals. A total of 207 residents were collected by using an online version. The obtained data were statistically analyzed using SPSS version 24.

Results:

207 residents fulfilling the inclusion criteria completed the study questionnaire. Only 3.9% of residents had a low level of imposter characteristics, 45.9% had a moderate level, 47.3% had a high level, while 2.9% had intense imposter feelings. In addition, high to intense imposter feelings were detected among 54.4% female residents compared to 42.3% of males. Surgical residents and residents in their first years of residency showed insignificantly higher imposter feelings than others (51%, 61.5% for R2 residents; P> 0.05 for all). All other factors were insignificantly affecting the resident's imposter syndrome score.

Conclusion:

Imposter syndrome is prevalent among surgical and medical residents and was significantly higher in females than males in Makkah city hospitals, Saudi Arabia.

Key Words:

Prevalence, Imposter syndrome, Surgical and medical residents.

Introduction:

Imposter syndrome (IS) or impostorism is defined by a persistent feeling of self-doubt and the fear of being exposed as an intellectual phony [1, 2]. It is associated with psychological features like perfectionism, neuroticism, and anxiety, and it can contribute to stress, lack of motivation, and an inability to enjoy successes [3, 4]. Those with IS are unable to internalize a sense of accomplishment, competence, or skill, despite evidence of ability [5]. instead, they tend to contribute success to external factors such as luck and help from others [2]. As a result of their fear of failure, persons who suffer IS may be less inclined to apply for promotions, resulting in a lack of diversity in leadership roles such as deans or department chairs in academic medicine [1, 6]. In general, people believe they are less intelligent and capable than others think they are [1]. Legassie, Zibrowksi, and Goldszmidt found a negative link between feelings of IS and personal achievement scores in a 2008 study [7] . As reported by Schubert & Bowker, IS has significantly negative correlation with self-esteem [8]. Clance and Imes were the first to describe it in a group of high-achieving women in 1978 [6]. Since then, the term IS has been noticed and reported at similar levels for both genders [9]. Medical students may find the transition from preclinical to clinical training to be particularly difficult [2]. Importantly, IS is widely spread within the medical field (6). It is recognized to have an impact on all levels of medical training, beginning with medical students and extending through transition stages and even into senior faculty [6]. The prevalence of IS has been estimated to range from 22% to 60% in several studies involving students, trainees, and practicing physicians from various nations[6]. For example, in Saudi Arabia, IS is very common among young adults, approximately 57.8%. Significant impostorism was found in 22% of Nigerian medical students and up to 80% among Harvard medical and dental students [10, 11]. Additionally, in trainees with risk factors including low self-esteem, feminine sex, and being in the medical culture the rate of IS is between 33 to 44% [12, 10]. As reported in the United States, among medical students, the IS rate for men and women is 23.67% and 49.4%, respectively; among residents, the IS rate was similar to medical students, with 41% in women and 24% in men [10]. IS must be recognized, acknowledged, and tackled on both individual as well as universal levels to increase the pipeline of diverse candidates in academic medicine [6]. We carried out this study to determine the prevalence and severity of IS among surgical and medical residents in Makkah, Sau-

di Arabia.

Methodology:

From December 2020 to July 2021, all 207 medical and surgical residents from Makkah hospitals were invited to complete the cross-sectional questionnaire.

The research protocol was reviewed and approved by the University of Umm Al Qura's Ethics Committee and received ethical approval(HAPO-02-K-012-2022-02-962)

A retrospective cross-sectional survey was conducted by utilizing the Clance Imposter Phenomenon Scale (CIPS). The survey was distributed to Makkah city hospitals residents between December 2020 and July 2021 through social media platforms in an online version due to COVID-19 protocol preventive measures. The inclusion criteria were any medical/surgical residents in Makkah hospitals' residency program. Medical students, interns, and consultants were excluded. The informed consent was gathered from all participants by an online version. Any questioning and querying about the study from respondents were answered by the researchers. The required sample size to achieve the research was estimated by Epi Info™ 7.1.5 (Center for Disease Control and Prevention; Atlanta, Georgia, USA). The Clance Imposter Phenomenon Scale (CIPS) has 20 questions to help individuals determine IS characteristics and their severity. The questions are scored with a five points scale to assess the level of agreement with the statements. In addition to (CIPS), the residents were inquired to complete a short demographic questionnaire.

Data analysis:

Data were extracted, revised, coded, and transferred to statistical software IBM SPSS version 24 (SPSS, Inc. Chicago, IL). All statistical analysis was done using two-tailed tests. A P-value less than 0.05 was statistically significant. Regarding Clance IP Scale for imposter syndrome severity, the overall score was obtained by adding the discrete score for each statement. The overall score ranges from 20-to 100. Respondents with a total score of 40 or less were labeled as having few Imposter characteristics (low IS). Those with a score between 41 and 60 are labeled as having moderate IS experiences. For respondents scored 61 to 80 frequently have Imposter feelings (High IS); and a score higher than 80 means the respondent often has intense IS experiences. Descriptive analysis based on frequency and percent distribution was done for all variables, including the Resident's personal data, residency type, and year. Also, frequency distribution for all items of Clance IP Scale was tabulated. Crosstabulation was used to assess the dis-

tribution of residents' severity of imposter syndrome by their personal data. Relations were tested using Pearson chi-square test and exact probability test for small frequency distributions. Independent t-test with One Way ANOVA were used to test the difference between residents regarding their total IS score.

Results

A total of 207 residents fulfilling the inclusion criteria completed the study questionnaire. 136 (65.7%) residents were females and 144 (69.6%) were single. Regarding residency program, 111 (53.6%) residents were at medical residency program and 96 (46.4%) were at surgical residency program. As for residency level, 116 (56%) residents were at their first residency year (R1), 39 (18.8%) were at 2nd residency year (R2), 30 (14.5%) at R3, 12 (5.8%) at R4, and only 10 (4.8%) at R5.

Table 1. Personal data of surgical and medical residents in Makkah city hospitals, Saudi Arabia

Personal data	No	%
Gender		
Male	71	34.3%
Female	136	65.7%
Marital status		
Single	144	69.9%
Married	62	30.1%
Residency program		
Medical	111	53.6%
Surgical	96	46.4%
Residency level		
R1	116	56.0%
R2	39	18.8%
R3	30	14.5%
R4	12	5.8%
R5	10	4.8%

Descriptive of imposter test items among surgical and medical residents in Makkah city hospitals, Saudi Arabia. 92.3% of residents could give the impression of being more competent than they are. 90.3% were often afraid of failing at a new assignment, 89.4% were disappointed and thought they should have accomplished much more, 88.4% of residents succeeded on a test or task despite being afraid and were often worried about not succeeding with a project or an exam.87.4% rarely do a project or task as they would like to do it, tend to avoid evaluations if possible, and dread others evaluating them. An exact 71% sometimes feel or believe that their success in life or career has resulted from some error. The residents' overall scores ranged from 22-87, with a mean score of 60.4 ± 10.3.

Severity of imposter syndrome among surgical and medical residents in Makkah city hospitals, Saudi Arabia. A total of 8 (3.9%) residents had low level of imposter characteristics, 95 (45.9%) had moderate level of imposter characteristics, 98 (47.3%) had high characteristics level while 6 (2.9%) had intense imposter feelings. Distribution

Table 2. Descriptive of imposter test items among surgical and medical residents in Makkah city hospitals, Saudi Arabia

Imposter syndrome items	Not at all true		Rarely		sometimes		often		very true	
	No	%	No	%	No	%	No	%	No	%
I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task	24	11.6%	41	19.8%	82	39.6%	22	10.6%	38	18.4%
I can give the impression that I'm more competent than I really am	16	7.7%	39	18.8%	73	35.3%	44	21.3%	35	16.9%
I avoid evaluations if possible and have a dread of others evaluating me	26	12.6%	38	18.4%	80	38.6%	34	16.4%	29	14.0%
When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future	32	15.5%	48	23.2%	59	28.5%	35	16.9%	33	15.9%
I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people	37	17.9%	45	21.7%	57	27.5%	39	18.8%	29	14.0%
I'm afraid people important to me may find out that I'm not as capable as they think I am	37	17.9%	35	16.9%	59	28.5%	29	14.0%	47	22.7%
I tend to remember the incidents in which I have not done my best more than those times I have done my best	36	17.4%	34	16.4%	62	30.0%	40	19.3%	35	16.9%
I rarely do a project or task as well as I'd like to do it	26	12.6%	36	17.4%	75	36.2%	39	18.8%	31	15.0%
Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error	60	29.0%	37	17.9%	61	29.5%	30	14.5%	19	9.2%
It's hard for me to accept compliments or praise about my intelligence or accomplishments	42	20.3%	39	18.8%	64	30.9%	40	19.3%	22	10.6%
At times, I feel my success has been due to some kind of luck	42	20.3%	40	19.3%	51	24.6%	45	21.7%	29	14.0%
I'm disappointed at times in my present accomplishments and think I should have accomplished much more	22	10.6%	37	17.9%	62	30.0%	49	23.7%	37	17.9%
Sometimes I'm afraid others will discover how much knowledge or ability I really lack	32	15.5%	35	16.9%	68	32.9%	37	17.9%	35	16.9%
I'm often afraid that I may fail at a new assignment or undertaking even though I generally do well at what I attempt	20	9.7%	34	16.4%	77	37.2%	37	17.9%	39	18.8%
When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success	25	12.1%	39	18.8%	66	31.9%	43	20.8%	34	16.4%
If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done	37	17.9%	44	21.3%	49	23.7%	40	19.3%	37	17.9%

Imposter syndrome items	Not at all true		Rarely		sometimes		often		very true	
	No	%	No	%	No	%	No	%	No	%
I often compare my ability to those around me and think they may be more intelligent than I am	34	16.4%	36	17.4%	52	25.1%	44	21.3%	41	19.8%
I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well	24	11.6%	44	21.3%	56	27.1%	56	27.1%	27	13.0%
If I'm going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact	37	17.9%	40	19.3%	52	25.1%	52	25.1%	26	12.6%
I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement	29	14.0%	38	18.4%	50	24.2%	46	22.2%	44	21.3%
Overall score										
Range Mean ± SD				22-87 60.4 ± 10.3						

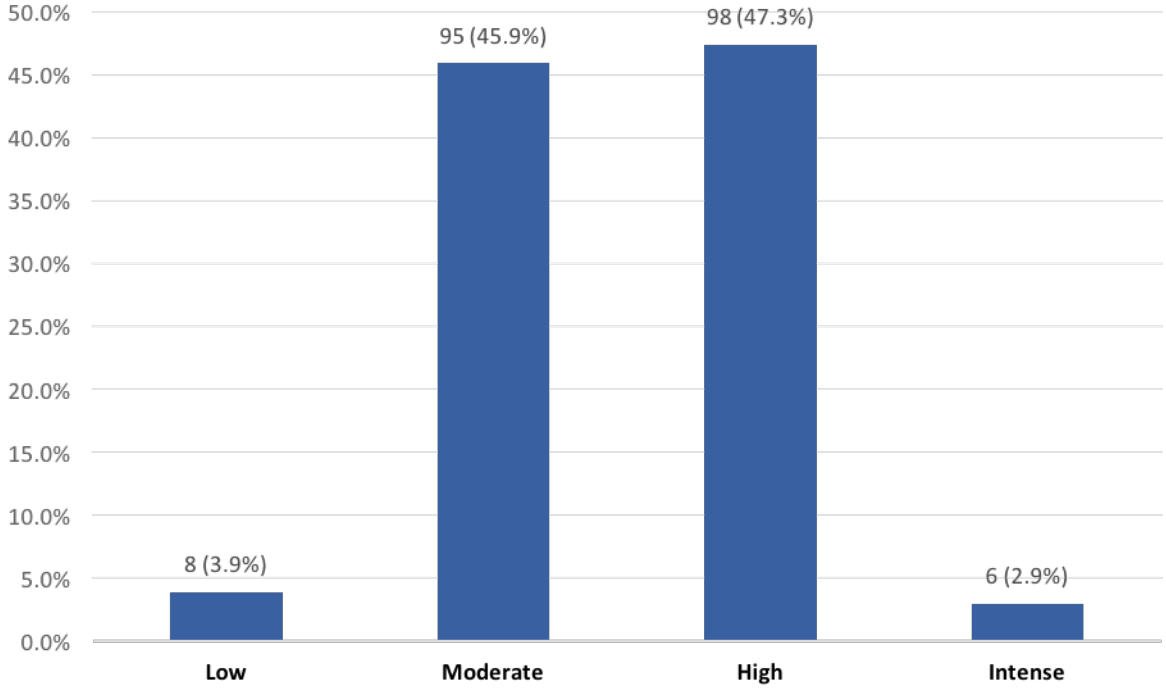


Figure1. Severity of imposter syndrome among surgical and medical residents in Makkah city hospitals, Saudi Arabia

of residents severity of imposter syndrome by their personal data. High to intense imposter feelings were detected among 54.4% of female residents compared to 42.3% of males with recorded statistical significance (P=.049). On the other hand, surgical residents, and residents at their first years of residency showed insignificantly higher imposter feelings than others (51%, 61.5% for R2 residents; P> 0.05 for all).

Table 3. Distribution of residents' severity of imposter syndrome by their personal data

Personal data	Severity of imposter syndrome				p-value
	Low / moderate		High / intense		
	No	%	No	%	
Gender					.049*
Male	41	57.7%	30	42.3%	
Female	62	45.6%	74	54.4%	
Marital status					.927
Single	71	49.3%	73	50.7%	
Married	31	50.0%	31	50.0%	
Residency program					.830
Medical	56	50.5%	55	49.5%	
Surgical	47	49.0%	49	51.0%	
Residency level					.313$
R1	62	53.4%	54	46.6%	
R2	15	38.5%	24	61.5%	
R3	13	43.3%	17	56.7%	
R4	6	50.0%	6	50.0%	
R5	7	70.0%	3	30.0%	

P: Pearson X^2 test $: Exact probability test

* P < 0.05 (significant)

Distribution of residents' imposter syndrome score by their personal data. The mean score was significantly higher among female residents (61.8 ± 9.7) than male residents (57.7 ± 11.0); P=.006. All other factors were insignificantly affecting the resident's imposter syndrome score.

Table 4. Distribution of residents' imposter syndrome score by their personal data

Personal data	Total IS score		p-value
	Mean	SD	
Gender			.006*
Male	57.7	11.0	
Female	61.8	9.7	
Marital status			.894
Single	60.5	10.9	
Married	60.3	9.0	
Residency program			.687
Medical	60.1	8.5	
Surgical	60.7	12.1	
Residency level			.751#
R1	60.5	10.0	
R2	60.4	10.4	
R3	61.0	10.5	
R4	61.7	10.7	
R5	56.2	13.3	

P: independent t-test #: One Way ANOVA

* P < 0.05 (significant)

Discussion:

The current study demonstrates that the prevalence of IS among surgical and medical residents is high, (93.2%) of the participants showed moderate to high imposter characteristics similar to other trainees at the same or different stages of training [1,13, 14]. This might result from the nature of the residency period as the responsibility increases as well as the expectations. Fe-

males have a significantly higher mean imposter score than males. Similarly, the severity of imposter characteristics was higher in female residents than male residents, which is in line with other studies on students and residents [1, 10, 13, 14].

The current findings are consistent with a study done in Saudi Arabia which showed a high prevalence of IS among female adults and associated with depression and stress 15. In addition, this may be due to the difference in coping mechanisms between males and females, as males avoid situations where they feel vulnerable, and females are more likely to manage IS by competing harder and facing their doubts[16].

On the other hand, Sullivan's study on pharmacy residents disclosed no correlation between gender and displaying IS, which is consistent with studies conducted in the non-medical population [9, 17, 18]. These findings should warrant future research projects to study IS in different workplaces as the work culture may explain the gender difference in the severity of IS.

Interestingly, as in Legassie, Bhama, and Oriel's studies, there was no statistically significant difference between residency level and exhibiting impostorism, which is similar to our results [10, 13, 14, 19]. Furthermore, in this study there was no statistical difference between medical and surgical residents. Marital status was also not a significant factor to show impostorism. All these are in line with Legassie's study [14].

Regarding Legassie's study, the findings warrant the program directors regarding the new residents with IS who may encounter a feeling of self-doubt, burnout, depression, and anxiety which need further studies. The current study doesn't evaluate the association of IS with anxiety, depression, and burnout. IS may affect residents mental health which impacts the patient care quality and outcomes [20]. Local mentoring programs should be implanted to identify IS in residents considering trainees' mental health. As shown in Baumann's study, most residents reported that small IS wellness sessions are practical measures, and they are comfortable recognizing IS among them [7].

Conclusion:

In conclusion, the prevalence of IS is high among medical and surgical residents. Except for gender, there were no factors associated with IS. Preventive measures should be taken to identify and treat IS. Future studies should focus on other subspecialties, different workplaces, cultures and to assess the association between IS and the level of training, specialty, predisposing psychiatric diseases, and long working hours.

Limitations:

The limitations of this study are its retrospective design, questionnaire-based, self-administered, and convenient sampling; results may change with a larger population. Furthermore, the ability to reach residents depended on forwarding the link to them by colleagues and students.

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