

The impact of imposter syndrome on self-esteem and intention to quit among respiratory therapy (RT) students in Saudi Arabia

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Abstract

Introduction: Imposter syndrome is common among health disciplinary students, leading to serious consequences. However, the impact of imposter syndrome on self-esteem and quitting intention among respiratory therapy students has not been well researched.

Objective: To report on the prevalence of imposter syndrome and assess its impacts on self-esteem and quitting intention among respiratory therapy students in Saudi Arabia.

Methods: A nonprobability cross-sectional questionnaire using the Clance Impostor Phenomenon Scale and the Rosenberg Self-Esteem Scale was self-administered and distributed among respiratory therapy students between October 2022 and April 2023. Data analysis was performed using Descriptive and inferential statistics.

Results: Of the 1500 respiratory therapy students invited to participate in the study, 901 surveys were completed; and thus, included in the final analysis. Of whom, 92% were presented with imposter syndrome: 44% with moderate, 35% with frequent, and 13% with intense feelings. In addition, 60% of respiratory therapy students and interns experienced low self-esteem, while only 0.5% indicated high self-esteem. More than 50% of the study participants thought about quitting the respiratory therapy program, and 30% have been diagnosed with psychological disorders. Furthermore, there was a significant association between imposter syndrome and low self-esteem, $p < 0.001$. Factors associated with imposter

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syndrome and low self-esteem were family income (<0.005) and parents' education (<0.005), quitting intention (<0.005), and having been diagnosed with psychological disorders (<0.005). Genders, academic levels, and grade point average were not associated with either imposter syndrome or self-esteem (>0.005).

Conclusion: Imposter syndrome and low self-esteem are prevalent among respiratory therapy students, both of which are associated with considering leaving the respiratory therapy program. Effective interventions should be implemented to ameliorate the symptoms imposter syndrome and low self-esteem; thus, improving the academic experience of respiratory therapy students.

Keywords

Imposter syndrome, self-esteem, RT students, intention to quit

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Introduction

Imposter syndrome (IS) is a psychological phenomenon in which individuals persistently doubt their abilities and accomplishments, despite external evidence to the contrary.¹ It is commonly experienced among high achievers, including students across different healthcare disciplines, such as medical¹⁻⁴ and nursing students.⁵ Of importance, though, the research has linked IS to psychological morbidities such as emotional exhaustion, distress, depression, and anxiety on students in health disciplinary fields.⁴ Additionally, the negative consequences of IS may manifest in various detrimental emerges, impairing academic performance and professional development. Students experiencing IS may decline valuable opportunities due to the fact of fear of making mistakes, leading to impeded development potentially increased quitting intentions and lowered self-esteem.⁶

Self-esteem, the degree to which individuals value themselves and their abilities, is paramount for healthcare workers in clinical settings.³ It has been associated with optimizing patient care across different healthcare specialties. For instance, a previous study showed that 59 critical care nurses with high self-esteem provide optimal patient care and develop inner belief in their skills, resulting in dealing more effectively when encountering challenging situations. Within healthcare students' contexts, high self-esteem has also been linked to positive outcomes. A recent study conducted on medical students reported a positive correlation between self-esteem and students' grade point average (GPA).³ Conversely, a lower level of self-esteem has been consistently linked to increased intention to leave the profession.⁶ Therefore, promoting self-esteem plays a crucial role in improving students' outcomes.

There has been growing interest in investigating the relationship between IS and self-esteem among students. A recent cross-sectional study conducted in Saudi Arabia, which included 573 medical students at different academic levels, concluded that IS was prevalent and negatively correlated with high self-esteem.³ Thus, there needs to be tailored intervention to mitigate IS and promote self-esteem among healthcare students.

Respiratory therapy (RT) students encounter many academic and clinical stressors, such as achieving high GPAs, dealing with heavy academic loads (e.g., quizzes, assignments, and exams), and performing procedures on critically ill patients during clinical rotations; all of which might challenge their self-esteem and put them at risk of developing IS. However, there has been no study to date to explore the relationship between IS and self-esteem among RT students in Saudi Arabia. Therefore, the aims of this study are (1) to report on the prevalence of IS, and (2) to explore the association between self-esteem and IS and identify potential factors associated with self-esteem and IS in all RT programs across Saudi Arabia.

Methods

Study design and settings

A cross-sectional survey was conducted between 1 October 2022 and 30 April 2023, using an online platform (Survey Monkey) to investigate the impact of IS on self-esteem and quitting intention among RT students in Saudi Arabia.

Participants, sampling strategy, and data collection

Undergraduate RT students and interns from all provinces of Saudi Arabia were invited to participate in the study using a nonprobability convenience sampling technique. There are 16 RT programs in Saudi Arabia, encompassing more than 1500 students at all levels. The questionnaire begins with a cover letter, which explicitly mentions the study objectives, the identity of the principal investigator for further inquiries, and that the research information will be kept confidential and anonymous, as it will only be used for research purposes. Students across all RT programs were invited to participate in the study and encouraged to submit a complete survey. Incomplete surveys were not included in the final analysis. As this is an exploratory study, no sample size calculations were required.

Participation was voluntary, and informed consent was obtained before completing the study questionnaire. Instructors from the participating RT programs distributed the study survey to students via an online link (sent via WhatsApp message) during their classes. WhatsApp is considered an official way of communication between faculty and students, where instructors have distributed the survey link. The survey was supposed to take 5–8 min to fill out. Complete responses were submitted, stored on a web server, and copied to an Excel sheet for later use.

Instruments

The study instrument included sociodemographic questions, the Clance Impostor Phenomenon Scale (CIPS),⁷ and the Rosenberg Self-Esteem Scale (RSES)⁸; both have already been validated.^{7,9,10} The sociodemographic variables are age, gender, geographical region, academic level, current GPA, family income, parents' highest education, quitting intention, and prior diagnosis of psychological disorders (anxiety/depression).

Imposter syndrome

The CIPS was used to assess IS, which consists of 20 items and rates each one on a 5-point Likert scale ranging from 1 (not at all true) to 5 (very true). The total score is between 20 and 100. A score of 40 or less indicates few IP characteristics; a score between 41 and 60 means moderate IP experiences; a score between 61 and 80 demonstrates that the respondent frequently has impostor feelings; and a score higher than 80 is interpreted as an intense IP feeling. The CIPS has been shown to be reliable with a Cronbach's alpha of 0.96.⁹ Its selection is consistent with our research objectives, ensuring a thorough investigation of IS and its impact on self-esteem and quitting intention among RT students.

Self-esteem

The RSES was used to examine self-esteem, which contains 10 items and rates each one on a 4-point Likert scale from 0 (strongly agree) to 4 (strongly disagree). The total score is between 0 and 30. Scores between 25 and 30 are interpreted as "high self-esteem," between 15 and 25 as "moderate self-esteem," and scores below 15 as "low self-esteem." RSES has reported Cronbach alpha coefficients ranging from 0.87 to 0.92.¹¹ The RSES is the most widely employed, validated, and reliable measure of self-esteem, has been extensively utilized in psychological research, and its application in examining self-esteem sheds light on the complex interplay between IS, self-esteem, and the intention to quit, offering insights into the factors that impact students' decisions to continue or disengage from their academic endeavors.

Ethical consideration

An independent research committee at King Faisal University, Saudi Arabia, had granted an ethical approval to conduct this study (ID:KFU-REC-2022-OCT-ETHICS264).

Statistical analysis

Data analysis was performed using Stata statistical software (StataCorp LLC, College Station, TX, USA). Data were presented as percentages (%) or arithmetic means (SD), for categorical and continuous variables, respectively. Descriptive statistics were performed to report on the prevalence of IS and self-esteem. A Chi-squared test was used to assess the impacts of IS on self-esteem, demographic factors such as age, gender, GPA, family income, parents' highest degree of education, and prior diagnoses of psychological disorders (anxiety/depression). In this study, a p -value < 0.05 was considered statistically significant.

Results

Of the 1500 sent questionnaires, 1200 students showed interest to participate in the study. Of whom, 901 submitted complete surveys, and thus included in the final analysis, Figure 1. There were more females than males. More than half of the participants have considered quitting the RT program, Table 1. Demographic information is shown in Table 1.

Prevalence of IS

The Clance Impostor Phenomenon Scale was used to determine whether students had the characteristics of IS. IS was presented in 92% of RT students, The mean (SD) score for the IP scale was 61,¹² indicating frequent impostor feelings. The prevalence of impostor feelings was as follows: 44% had moderate impostor feelings, 35% had frequent feelings, and 13% had intense feelings, Table 2.

Factors associated with IS

The relationships between IS and demographic variables were assessed. Family income (low family income of less than 5000 SR) and parents' education (lower education—high school) were the main factors that were found to be associated with IS (Table 3). Moreover, students who ever thought about quitting the RT program experienced more impostor symptoms compared to those who did not, $p < 0.001$. Also, having been diagnosed with depression or anxiety was an associated factor of more impostor feelings, $p < 0.001$ (Table 3). No associations were found between IS and gender, academic level, or GPA.

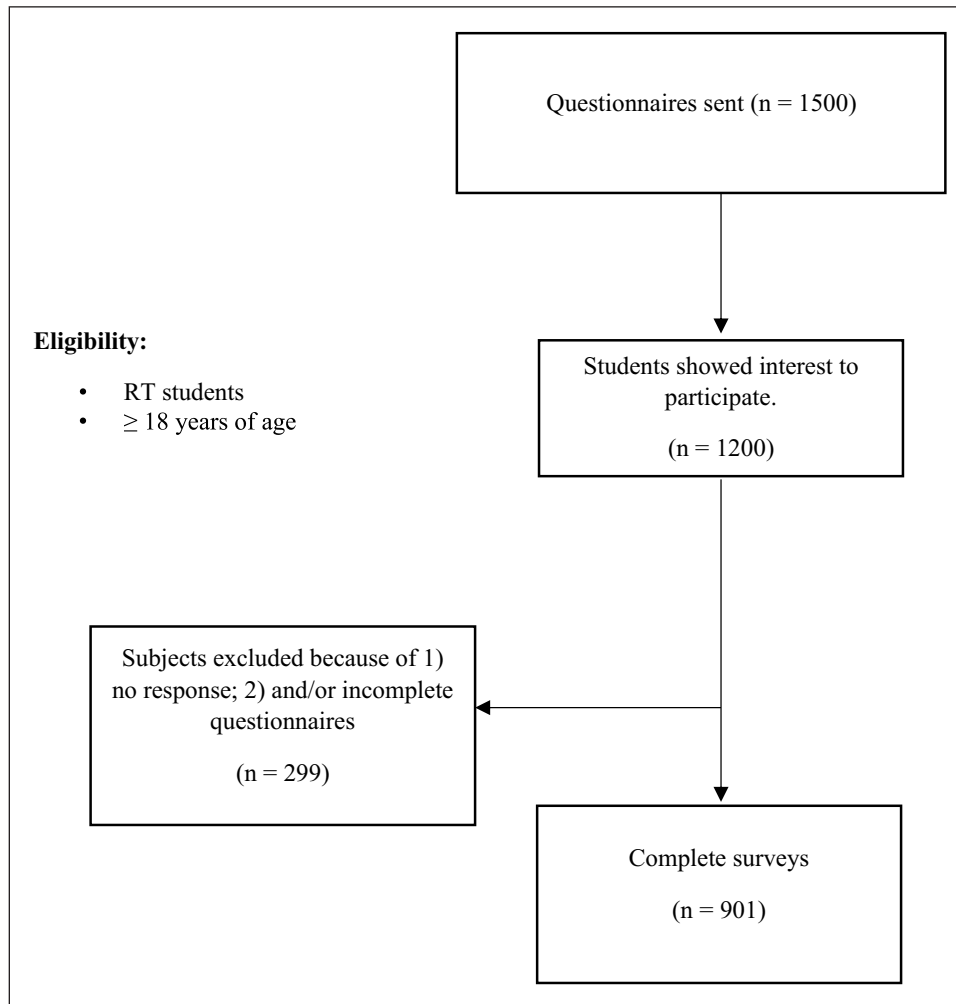


Figure 1. Flow chart of the study participants.

Self-esteem and IS

Self-esteem was measured using the Rosenberg Self-Esteem Scale. The results showed 59.6% of RT students had low self-esteem, while normal and high self-esteem was observed in 40% and 0.5%, respectively. Further, there was a significant association between IS and self-esteem, $p < 0.001$. Of students with low self-esteem, 73% had frequent and intense imposter feelings, while only 2% of those with high self-esteem had IS, Table 4.

Factors associated with self-esteem

The relationships between self-esteem and demographic variables were assessed, as shown in Table 5. Factors associated with self-esteem were GPA, family income, and parents' education ($p < 0.05$). Although considering leaving the RT program was associated with self-esteem ($p < 0.001$), previous psychological disorders (anxiety/depression) were not, Table 5.

Discussion

To the best of our knowledge, our study is the first to examine the impact of IS on self-esteem and quitting intention among RT students in Saudi Arabia. The current study revealed that RT students were more likely to experience IS and low self-esteem, both of which were significantly associated with an increased risk of quitting school. Additionally, IS and self-esteem were substantially correlated with several contributing factors, including family income, parents' education, intention to leave the RT program, and a prior diagnosis of mental illness.

IS is a serious phenomenon among health disciplinary students, resulting in negative consequences that compromise their mental health and academic success. Previous studies have demonstrated that up to 97% of medical students are more inclined to suffer from IS.^{13–15} Similarly, a recent systematic review of 11 studies showed that the prevalence of imposter syndrome among nursing students and practitioners was relatively high, reaching 100%.⁵

Table 1. Demographic data of study participants ($n = 901$).

Variable	
Age, years (mean (SD))	21 (2.1)
Gender (male %)	421 (47%)
Geographical region, n (%)	
Central	187 (21%)
Eastern	127 (14%)
Western	215 (24%)
Northern	100 (11%)
Southern	272 (30%)
Academic level, n (%)	
1st year	57 (6%)
2nd year	190 (21%)
3rd year	259 (29%)
4th year	226 (25%)
Intern	169 (19%)
Current GPA, (n %)	
≥ 4.5	336 (37%)
4.00–4.50	271 (30%)
3.51–3.99	173 (19%)
3.0–3.50	64 (7%)
< 3.0	35 (4%)
NA	22 (3%)
Family income in SR, n (%)	
$> 20,000$ SAR	329 (37%)
10,000–19,999 SAR	227 (25%)
5000–9999 SAR	136 (15%)
< 5000 SAR	209 (23%)
Parents' highest education, n (%)	
High school	286 (32%)
Diploma	64 (7%)
Bachelor	456 (51%)
Master's	48 (5%)
Doctoral	47 (5%)
Have you ever thought about quitting the RT program? n (%)	
Yes	507 (56%)
No	493 (44%)
Have you ever been diagnosed with any mental/psychological disorders? n (%)	
Yes	278 (31%)
No	623 (69%)

Data are presented as n (%) or mean SD.

GPA: grade point average; RT: respiratory therapy.

Furthermore, a pertinent investigation involving 162 dentistry students in Saudi Arabia revealed that 91% of participants reported experiencing imposter feelings.¹⁶ In line with those, our study showed that approximately 92% of the RT students reported moderate to intense levels of imposter syndrome. These findings can be attributed to the fact that impostorism is highly prevalent among students of health majors since they have higher personal standards and a tendency toward perfection.¹⁷ Furthermore, persistent doubts about their abilities and the fear of failing to

Table 2. Prevalence of imposter syndrome.

Impostor feelings	Frequency (%)
Few	70 (8%)
Moderate	399 (44%)
Frequent	312 (35%)
Intense	120 (13%)

Data are presented as frequency and percentage.

achieve their expectations may exacerbate the risk of impostor feelings.¹²

Our finding that more than half of the participants thought about quitting the RT program is alarming. Indeed, IS often instigates skepticism regarding one's competencies and aptitudes, thereby fostering a reduction in self-assurance, which may culminate in decreased academic performance and heightened discontentment with their educational trajectory. Subsequently, this diminished confidence may prompt contemplation of program withdrawal, reflective of perceived inadequacy in achieving success within their chosen professional domain. Therefore, addressing these challenges through tailored interventions aimed at augmenting self-efficacy, and resilience is paramount to providing essential support to students and facilitating their academic and professional achievements.

In the current study, it was clearly shown that over half of those with IS were female. Nevertheless, our study outcomes demonstrated no significant gender differences in impostor syndrome. These findings were consistent with relevant studies revealing that the ratio of males to females experiencing impostorism was similar and that gender was not statistically significantly associated with IS.^{2,11,18} In contrast, previous literature has proven that women have higher rates of impostor feelings compared to their male counterparts.^{1,4,19} Impostorism is pervasively widespread among high-achieving women due to several causative factors, including stereotypes of gender roles in the workplace and family dynamics, despite growing societal and academic demands.²⁰

Interestingly, our study results emphasized the importance of self-esteem in the IS, indicating that students with low self-esteem were more susceptible to encountering impostor feelings than their peers with greater self-esteem. In concordance with this, analogous studies revealed a significant association between IS and self-esteem, showing that high levels of impostor feelings were intimately correlated with low self-esteem.^{18,21,22} These outcomes are highly expected and reasonable given that the distinctive traits of impostors, such as self-doubt, fear of failure, and a feeling of inadequacy, are typical symptoms of diminished self-esteem.²² Indeed, it has been demonstrated that low impostor characteristics and a profound sense of self-worth were significant indicators for better clinical practice.²³ Therefore, reinforcing techniques should be implemented to increase

Table 3. Factors associated with imposter syndrome.

	Few (<i>n</i> = 70)	Moderate (<i>n</i> = 399)	Frequent (<i>n</i> = 312)	Intense (<i>n</i> = 120)	<i>p</i> -Value
Gender					
Male	35 (50)	195 (49%)	147 (47%)	44 (37%)	0.115
Female	35 (50%)	204 (51%)	165 (52%)	76 (63%)	
Academic level					
1st year	6 (9%)	30 (8%)	18 (4%)	9(8%)	0.113
2nd year	10 (14%)	80 (20%)	70 (22%)	30 (25%)	
3rd year	16 (23%)	104 (26%)	106 (34%)	33 (28%)	
4th year	20 (29%)	105 (27%)	76 (24%)	25 (21%)	
Intern	18 (19%)	80 (20%)	48 (15%)	23 (19%)	
Current GPA, <i>n</i> (%)					
≥4.51	2 (3%)	15 (4%)	9 (3%)	9 (8%)	0.234
4.00–4.50	5 (7%)	28 (7%)	23 (7%)	8 (7%)	
3.51–3.99	9 (13%)	78 (20%)	72 (23%)	14 (12%)	
3.0–3.50	22 (31%)	119 (30%)	94 (30%)	36 (30%)	
<3.0	31 (44%)	149 (37%)	109 (35%)	47 (39%)	
NA	1 (1%)	10 (3%)	5 (2%)	6 (5%)	
Family income in SR, <i>n</i> (%)					
>20,000 SA	16 (23%)	66 (17%)	39 (13%)	88 (73%)	<0.001
10,000–19,999 SAR	11 (16%)	65 (16%)	57 (18%)	3 (3%)	
5000–9999 SAR	23 (33%)	123 (31%)	142 (46%)	7 (6%)	
<5000 SAR	20 (21%)	145 (36%)	142 (46%)	22 (18%)	
Parents' highest education, <i>n</i> (%)					
High school	20 (21%)	104 (26%)	73 (23%)	89 (74%)	<0.001
Diploma	6 (9%)	37 (9%)	16 (5%)	5 (4%)	
Bachelor	37 (53%)	211 (53%)	184 (59%)	24 (20%)	
Master's	4 (5%)	27 (7%)	16 (5%)	1 (1%)	
Doctoral	3 (4%)	20 (5%)	23 (7%)	1 (1%)	
Have you ever thought about quitting the RT program? <i>n</i> (%)					
No	38 (54%)	194 (49%)	144 (46%)	18 (15%)	<0.001
Yes	32 (46%)	205 (51%)	168 (54%)	102 (85%)	
Have you ever been diagnosed with any mental/psychological disorders? <i>n</i> (%)					
No	52 (74%)	310 (28%)	236 (76%)	25 (21%)	<0.001
Yes	18 (26%)	89 (22%)	76 (24%)	95 (79%)	

Table 4. Association between imposter syndrome and self-esteem.

	Low	Normal	High	<i>p</i> -Value
Self-esteem, <i>n</i> (%)				
Imposter feeling				<0.001
Few	55 (79%)	15 (21%)	0 (0%)	
Moderate	282 (71%)	117 (29%)	0 (0%)	
Frequent	182 (58%)	127 (41%)	3 (1%)	
Intense	18 (15%)	101 (84%)	1 (1%)	

students' and healthcare professionals' levels of self-esteem and confidence.

In regards to sociodemographic characteristics, our study findings pointed out that students from low-income families were more likely than students from wealthy families to experience imposter symptoms and low self-esteem. These

results are supported by previous studies that found a significant correlation between low socioeconomic status and an increased risk of having intense imposter sentiments.^{24,25} Such results may be explained by the fact that wealthy students have access to a variety of materials and resources that help them achieve their aspirations, in contrast to those with

Table 5. Factors associated with self-esteem.

	Low (n = 537)	Normal (n = 360)	High (n = 4)	p-Value
Gender				
Male	253 (47%)	166 (46%)	2 (50%)	0.947
Female	284 (53%)	194 (55%)	2 (50%)	
Academic level				
1st year	30 (6%)	26 (7%)	1 (0.25%)	0.278
2nd year	102 (19%)	87 (24%)	1 (0.25%)	
3rd year	153 (28%)	105 (29%)	1 (0.25%)	
4th year	141 (26%)	84 (23%)	1 (0.25%)	
Intern	111 (21%)	58 (16%)	0 (0%)	
Current GPA, n (%)				
≥4.51	11 (2%)	24 (7%)	0 (0%)	0.015
4.00–4.50	38 (7%)	26 (7%)	0 (0%)	
3.51–3.99	97 (18%)	76 (21%)	0 (0%)	
3.0–3.50	163 (30%)	107 (30%)	1 (0.25%)	
<3.0	218 (41%)	115 (32%)	3 (0.75%)	
NA	10 (2%)	12 (3%)	0 (0%)	
Family income in SR, n (%)				
>20,000 SAR	78 (15%)	131 (36%)	0 (0%)	<0.001
10,000–19,999 SAR	95 (18%)	41 (11%)	0 (0%)	
5000–9999 SAR	159 (30%)	67 (19%)	1 (0.25%)	
<5000 SAR	205 (38%)	121 (34%)	3 (0.75%)	
Parents' highest education, n (%)				
High school	141 (26%)	145 (40%)	0 (0%)	<0.001
Diploma	39 (7%)	25 (7%)	0 (0%)	
Bachelor	289 (53%)	164 (46%)	3 (75%)	
Master's	34 (6%)	14 (4%)	0 (0%)	
Doctoral	34 (6%)	12 (3%)	1 (25%)	
Have you ever thought about quitting the RT program? n (%)				
No	250 (48%)	117 (32.5%)	0 (0%)	<0.001
Yes	277 (52%)	243 (67.5%)	4 (100%)	
Have you ever been diagnosed with any mental/psychological disorders? n (%)				
No	52 (74%)	310 (28%)	236 (76%)	<0.001
Yes	18 (26%)	89 (22%)	76 (24%)	

Data are presented as frequency and percentage unless stated otherwise.

low family incomes.²⁵ Moreover, we found that students whose parents had a bachelor's degree or less had greater odds of exhibiting IS and low self-esteem. Another study also showed that students whose parents had a low level of education, such as a diploma or less, were more inclined to have low self-esteem.^{3,26} These observations may imply that parents with advanced degrees are better equipped to recognize and address any psychological stress their children may experience throughout their lives.

According to our study's analysis, greater imposter feelings and low self-esteem among RT students were significantly correlated with an increased intention to quit the RT program. In line with this, subsequent literature revealed that impostors had a considerably stronger tendency to leave the profession due to their lack of self-confidence and their inability to cope with the upcoming challenges.^{2,27,28} This could be a result of direct exposure to destructive criticism during

their training, leading to psychological suspicions about their ability to live up to future expectations.⁶

Additionally, our results showed that previous diagnoses of mental disorders have been found to be significantly associated with intense IS and low self-esteem among RT students. In concordance with this, pertinent studies of health disciplinary students and physicians have demonstrated that impostorism is strongly linked to anxiety, depression, and low self-esteem, which can be exacerbated by the demanding nature of the medical profession and thus negatively affect the quality of patient care.^{29–31} Similarly, previous literature showed that impostors were more vulnerable to psychological disorders including stress, anxiety, and depression, as well as an intense fear of failing, both of which hindered their abilities to succeed in both the practical and educational spheres.^{32–34} Likewise, a recently published study indicated that using antidepressants may increase the risk of

developing severe IS.²⁴ Therefore, promoting mental health among students in health majors is essential for successful academic and practical achievements.

Strengths and limitations

This study is noteworthy since it is the first to examine the impact of IS on self-esteem and quitting intention among RT students in Saudi Arabia. Our study implications have provided valuable insights into the current evidence of implementing targeted interventions to ameliorate the adverse consequences associated with IS. Furthermore, an important strength of this study is that it recruited a well-representative sample size from 15 different universities and colleges in an effort to generalize its findings across the country. However, this study has some limitations. It was conducted through a cross-sectional design, which did not determine the cause-and-effect relationships between IS and low self-esteem. Moreover, using a self-reported survey may provide subjective data, which impose recall bias on the study findings. Another limitation is that no sample size calculation was performed; however, all RT programs participated in the study. Further studies are recommended to examine the causes of IS and implement effective interventions to improve the psychological well-being of RT students in Saudi Arabia. Academic institutions are strongly recommended to integrate training initiatives, specifically workshops or seminars, aimed at reinforcing self-efficacy attributes among students with IS, thereby attenuating sensations of incompetence.

Conclusion

Positive IS and low self-esteem were highly prominent among RT students, both of which were significantly associated with family income, parental education, prior diagnosis of mental disorders, and the intention to leave the school. No gender differences were detected among imposters. Effective interventions for improving the psychological well-being of health disciplinary students should be implemented for successful clinical and academic achievements.

Author contributions

Conceptualization, R.A.S. and A.M.A.; methodology, R.A.S., Y.R.A., A.A.A., and T.M.A.; formal analysis, R.A.S. and A.A.; investigation, R.A.S., S.S.A., A.S.A., and M.A.; resources, R.A.S. and A.A.B.; data curation, R.A.S., A.M.A., Y.R.A., A.A.A., S.S.A., A.S.A., A.H.A., S.S.A., M.A.A., F.H.A., G.S.A.; writing—original draft preparation, R.A.S.; writing—review and editing, M.A.A., F.H.A., S.M.A., and S.S.A., A.H.A.; visualization, A.A.A.; supervision, R.A.S.; project administration, T.M.A. All authors have read and agreed to the published version of the manuscript.

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Ethics approval

An independent research committee at King Faisal University, Saudi Arabia, granted ethical approval to conduct this study (ID: KFU-REC-2022-OCT-ETHICS264).

Informed consent

Written informed consent was obtained from participants before completing the study questionnaire.

Trial registration


NA.

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Supplemental material

Supplemental material for this article is available online.

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