Perfectionism among Undergraduate Medical Students: Prevalence and Relationship to Academic Achievement, Gender, and Study Year

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Perfectionism Among Undergraduate Medical Students: Prevalence and Relationship to Academic Achievement, Gender, and Study Year

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Abstract

Purpose: Perfectionism is a personality trait characterized by striving for flawlessness and setting exceedingly high-performance standards. Medical students are often expected to be perfect, which can lead to perfectionism. Perfectionism can have both positive and negative effects on academic performance. This study aimed to explore the prevalence of perfectionism among undergraduate medical students and its relationship to academic achievement, gender, and study year.

Method: A descriptive, cross-sectional study was conducted among 489 medical students from years 2–6 at a medical college in Saudi Arabia. The Multidimensional Perfectionism Scale (MPS) was used to measure perfectionism, and academic achievement was assessed based on GPA. Descriptive statistics were used, and data were presented in the form of means and standard deviations, and demographic data were presented as frequencies and percentages. Responses were compared through independent samples t-test and ANOVA. Pearson’s correlation test was used to explore correlations between dependent and independent variables. The statistical significance level was set at p < 0.05.

Results: The results showed that the most prevalent perfectionism subtype was SOP. There were no significant gender differences in SOP, but females had higher OOP scores than males while males had higher SPP scores than females. There was a significant positive correlation between SOP and academic achievement. There was a significant difference in OOP across study years, with Year 6 students exhibiting higher levels compared to students in other study years.

Conclusion: The findings suggest that perfectionism is prevalent among undergraduate medical students and that SOP is the most common subtype. SOP is positively correlated with academic achievement, while OOP and SPP are not. Females tend to have higher OOP than males, and students in Year 6 tend to have higher OOP than students in other study years.

Keywords: Perfectionism, Medical students, Multidimensional perfectionism scale, Academic achievement, Gender differences

1. Introduction

The concept of perfectionism has several facets, including the desire for perfection and the establishment of high standards [1]. Psychologists define perfectionism as “a personality trait characterized by a person’s striving for flawlessness and setting exceedingly high-performance standards, accompanied by critical self-evaluations and concerns regarding others’ evaluations” [2–5].

Perfectionism, in the sense of striving for flawlessness and setting exceedingly high-performance standards, is widely regarded as a desirable trait, particularly in the academic area, because it is frequently associated with superior performance, which is linked to personal and social success.
Perfectionism has been linked to motivational, cognitive, emotional, and behavioral factors that predict superior academic success [6,7].

Hewitt and Flett [4] described three dimensions of perfectionism, which are self-oriented (SOP), other-oriented (OOP), and socially prescribed perfectionism (SPP). Self-oriented perfectionists always set high exceedingly standards for themselves and seek perfect accomplishment. They stringently evaluate and blame their own behaviors. On the other hand, other-oriented perfectionists always unrealistic beliefs and expectations about the capabilities of others. They expect other significant people to be perfect and stringently evaluate others’ performance. Socially prescribed perfectionists believe that significant others have unrealistic standards for them, evaluate them stringently, and exert pressure on them to be perfect [8].

Moreover, perfectionism can be classified as maladaptive and adaptive [9]. Negative and positive consequences of maladaptive and adaptive perfectionism have been suggested in several studies [8]. It was found that adaptive perfectionism is associated with low levels of stress [10], more ability to absorb challenges [11], experiencing psychological well-being [12], experiencing high achievement [13], and lower levels of depression [14]. On the contrary, maladaptive perfectionism is associated with negative psychological outcomes, including high levels of depression [5], high levels of anxiety [3], decreased self-esteem [15], high levels of personal distress [16], elevated levels of burnout [17–19], and overall dissatisfaction with life [15]. Moreover, Frost et al. [5] reported that perfectionism is a major diagnostic criterion for a DSM-III diagnosis. They also mentioned that some psychological theories consider it as a basis for several psychopathologies.

In the late 1990s, the idea of honoring perfectionism as a crucial personality attribute in physicians emerged and working as precisely as possible without being really distressed appeared to be the path medical students must take in a medical culture that values perfection. This leads them to seek perfectionism during their studies and life in general and to show higher personal standards compared to students of other professions [24]. So, perfectionism is an important personality trait to explore in medical students. The purpose of this study was to explore the prevalence of perfectionism among undergraduate medical students and its relationship to academic achievement, gender, and study year.

2. Method

2.1. Study design

A descriptive, cross-sectional study that was conducted to explore the prevalence of perfectionism among undergraduate medical students and its relationship to academic achievement, gender, and study year at a medical college in Saudi Arabia.

2.2. Study context

The medical college where the study was conducted has four programs: Medicine, Dentistry, Pharm D, and Nursing. All programs start with a common foundation year program where students from all the four programs study the same basic courses together. After that, students start to differentiate into four health professions programs. So, the study done actually among medical students starts from year 2 until year 6.

2.3. Sample size and type

The sample size was calculated as 220 subjects by the G*Power Software [25] for α = 0.05, β = 0.95, and degree of freedom = 5. All male and female students of Year 2 to Year 6 of the Medicine Program were approached, and 489 responses were obtained (n = 489).

2.4. Data collection

Data was collected through the Multidimensional Perfectionism Scale (MPS), which consists of 45 items that constitute three subscales. The first
subscale is SOP, which measures the degree to which individuals hold high expectations for themselves and strives for perfection in their own performance. The second subscale is OOP, which measures the degree to which individuals hold high expectations for others and are critical of their performance. The third subscale is SPP, which measures the degree to which individuals feel pressure from others to be perfect and fear negative evaluation from others. Each subscale is represented by 15 items and refers to a subtype of perfectionism. The MPS employs a 7-point Likert scale (ranging from 1 = strongly disagree to 7 = strongly agree). Scores on each subscale range from 15 to 105. The highest score of a respondent on any of the three subscales indicates the dominant subtype of perfectionism for that respondent.

For the purpose of this study, the previous year's grade point average (GPA) of participants was collected as a measure of their academic performance. Based on the level of academic performance, participants were categorized into four categories: low achievers (GPA <3), average achievers (GPA 3 to < 3.75), above average achievers (GPA 3.75 to < 4.75), and high achievers (GPA ≥4.75). This was informed by several previous studies [26–28].

The Multidimensional Perfectionism Scale (MPS) was transformed into an online survey using Google Forms. To ensure maximum participation, guarantee representation of different academic years and genders, and minimize selection bias, several recruitment strategies were employed. An invitation to participate in the study was sent via multiple communication channels, including emails, WhatsApp® groups, and university discussion forums on Moodle®. The invitation was disseminated in a clear and concise manner, emphasizing the purpose and importance of the study and assuring confidentiality. Two follow-up reminders were sent within three weeks to enhance participation and encourage completion of the survey.

2.5. Data analysis

Data was analyzed using the Statistical Package for the Social Sciences (IBM SPSS v.25). Descriptive statistics were used, and data were presented in the form of means and standard deviations. Demographic data were presented as frequencies and percentages. Responses were compared through independent samples t-test, and analysis of variance (ANOVA) was used for comparing more than two groups. Pearson’s correlation test was used to explore correlations between dependent and independent variables. The statistical significance level was set at p < 0.05.

2.6. Ethical considerations

Ethical approval was obtained from the college's Institutional Research Review Board (REF No: H-05-11072019) in accordance with the Declaration of Helsinki [29]. The students were given the right to refuse to participate in the study for any reason without prejudice to them. Data was kept confidential, and the online survey was distributed anonymously.

3. Results

Data of this study was collected from 489 male and female medical students from years 2–6. The reliability coefficients (Cronbach’s alpha) of the survey were found to be 0.85 for SOP, 0.83 for OOP, and 0.81 for SPP.

Table 1 shows that more than half of the participants were males (53.6 %). Also, more than half of the participants (51.5 %) were in the age group of 21–25 years, while only a small percentage (6.3 %) were older students (26–30 years). Around half of the participants were from Year 2 (50.5 %), while slightly less than one quarter of them were from Year 3 (23.9 %). Around two-thirds of the participants were most of the studies participants were above average (40.3 %) to high achievers (25.6 %), while the remaining one third were average (18.6 %) to low achievers (3.5 %). The prevalent perfectionism subtype for all participants (students of both genders, all age groups, all study years, and all levels of academic performance) is the SOP.

Figure 1 shows that the mean score for SOP (76.01) was the highest among the three subtypes, indicating that the participants tended to hold high expectations for themselves and strive for perfection in their own performance. The mean score for OOP (64.84) was lower than that of SOP, indicating that the participants tended to hold lower expectations for others and were less critical of their performance. The mean score for SPP (62.09) was the lowest among the three subtypes, indicating that the participants tended to feel less pressure from others to be perfect and less fear of negative evaluation from others. The standard deviations for each subtype were relatively moderate, indicating that there was some variability in the participants’ scores for each subtype.

Table 2 shows that there were no statistically significant gender differences in the mean score of SOP, as the mean scores for males were nearly similar. However, the mean score for OOP was significantly higher among females (65.95 ± 9.48) than males (63.57 ± 9.07), which suggests that
females tend to hold higher expectations for others and are more critical of their performance than males. The mean score for SPP was higher among males than females, but the difference was not statistically significant, which suggests that there may be a small difference in the degree to which males and females feel pressure from others to be perfect, but the difference is not statistically significant.

Table 3 shows that there were statistically significant differences between the students of different academic achievement levels in the SOP subtype. The mean scores for SOP were lowest for low achievers (41.47 ± 14.96) and highest for high achievers (81.78 ± 13.89), with the mean scores for average and above average achievers falling in between. This suggests that students with higher academic achievement tend to hold higher expectations for themselves and strive for perfection in their own performance compared to students with lower academic achievement.

However, there were no statistically significant differences between the students of different levels of academic achievement in the OOP and SPP subtypes. This suggests that the degree to which students hold high expectations for others, feel pressure from others to be perfect, and fear negative evaluation from others is not significantly related to their level of academic achievement.

Table 4 shows that there were statistically significant differences between the study years in the OOP subtype. The mean scores for OOP were highest for Year 6 (69.97 ± 8.49) and lowest for Year 1 (61.56 ± 7.40), with the mean scores for Years 3, 4, and 5 falling in between. This suggests that students in Year 6 tend to hold higher expectations for others and be more critical of their performance than students in other study years. However, there were no statistically significant differences between the study years in the OOP subtype.
Table 3. ANOVA test for differences between students with different levels of academic achievement regarding the perfectionism subtypes.

<table>
<thead>
<tr>
<th>Perfectionism Subtype</th>
<th>Levels of Academic Achievement</th>
<th>F</th>
<th>Sig. (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low (n = 17)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Average (n = 91)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Above Average (n = 197)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>High (n = 125)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOP</td>
<td>Mean (±SD)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>41.47 (±14.96)</td>
<td>8.01</td>
<td>0.000*</td>
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<tr>
<td></td>
<td>74.05 (±15.90)</td>
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<td></td>
<td>74.39 (±14.93)</td>
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<td></td>
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<tr>
<td></td>
<td>81.78 (±13.89)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OOP</td>
<td>Mean (±SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>64.53 (±11.42)</td>
<td>1.21</td>
<td>0.305</td>
</tr>
<tr>
<td></td>
<td>64.05 (±9.91)</td>
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<tr>
<td></td>
<td>64.96 (±8.89)</td>
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<tr>
<td></td>
<td>66.39 (±9.21)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPP</td>
<td>Mean (±SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>67.06 (±12.68)</td>
<td>1.35</td>
<td>0.257</td>
</tr>
<tr>
<td></td>
<td>61.78 (±11.74)</td>
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<td></td>
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<tr>
<td></td>
<td>61.59 (±10.89)</td>
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<td></td>
<td>62.18 (±9.79)</td>
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</tbody>
</table>

*a Statistically significant.

Table 4. ANOVA test for differences between students of different study years regarding the perfectionism subtypes.

<table>
<thead>
<tr>
<th>Perfectionism Subtype</th>
<th>Study Year</th>
<th>F</th>
<th>Sig. (p-value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year 2 (n = 247)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Year 3 (n = 117)</td>
<td></td>
<td></td>
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<td></td>
<td>Year 4 (n = 64)</td>
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<tr>
<td></td>
<td>Year 5 (n = 30)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Year 6 (n = 30)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOP</td>
<td>Mean (±SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>77.03 (±16.46)</td>
<td>2.00</td>
<td>0.093</td>
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<tr>
<td></td>
<td>76.21 (±15.78)</td>
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<tr>
<td></td>
<td>71.63 (±14.53)</td>
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<td></td>
<td>73.20 (±17.51)</td>
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<td></td>
<td>78.94 (±9.65)</td>
<td></td>
<td></td>
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<tr>
<td>OOP</td>
<td>Mean (±SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>61.56 (±7.40)</td>
<td>4.89</td>
<td>0.001*</td>
</tr>
<tr>
<td></td>
<td>64.17 (±10.33)</td>
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<tr>
<td></td>
<td>65.18 (±9.08)</td>
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<tr>
<td></td>
<td>66.43 (±9.86)</td>
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<tr>
<td></td>
<td>69.97 (±8.49)</td>
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<td></td>
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<tr>
<td>SPP</td>
<td>Mean (±SD)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>62.13 (±11.24)</td>
<td>0.01</td>
<td>1.000</td>
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<tr>
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<td>61.94 (±11.69)</td>
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<td>62.09 (±10.28)</td>
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<td></td>
<td>62 (±10.86)</td>
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<td></td>
<td>62.35 (±9.07)</td>
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</tbody>
</table>

*a Statistically significant.

statistically significant differences between the study years in the SOP and SPP subtypes. This suggests that the degree to which students hold high expectations for themselves, feel pressure from others to be perfect, and fear negative evaluation from others is not significantly related to their study year.

Table 5 shows that there is a statistically significant positive correlation between SOP and academic achievement, suggesting that students who hold higher expectations for themselves and strive for perfection in their own performance tend to have higher academic achievement. There is no statistically significant correlation between OOP or SPP and academic achievement. There is no statistically significant correlation between any of the three perfectionism subtypes and study year, indicating that the degree to which students hold high expectations for themselves and others, feel pressure to be perfect, and fear negative evaluation from others is not significantly related to their study year.

4. Discussion

The present study examined the prevalence and characteristics of perfectionism among male and female medical students at different levels of academic performance, across various study years, and age groups. The findings shed light on the distribution of perfectionism subtypes, gender differences, associations with academic achievement, and potential variations across study years and age groups.

The results indicate that SOP was the most prevalent subtype among all participants, suggesting that students tend to hold high expectations for themselves and strive for perfection in their own performance. A possible explanation for this finding is that medical school is a highly competitive environment, so students may feel pressured to achieve high grades and to be perfect in order to be successful. Another possible explanation is that medical students are often high-achieving individuals who have high standards for themselves, and they may strive for perfection in order to meet their own expectations and to achieve their goals. This finding aligns with previous research [20,23,30–32] and with other research highlighting the importance of internal standards and self-imposed pressures among high-achieving individuals [33]. Recognizing the prevalence of SOP among medical students, educational institutions could focus on providing support systems, including counseling services, stress management programs, and initiatives aimed at reducing the negative impact of perfectionistic tendencies on students’ mental well-being.

Regarding gender differences, the study revealed that there were no statistically significant differences
in SOP between males and females. This implies that both genders exhibit similar levels of self-imposed expectations and drive for personal excellence. This is congruent with the results of a previous study by Hassan et al. [34]. However, females demonstrated significantly higher levels of OOP compared to males, indicating that they tend to hold higher expectations for others and be more critical of their performance. This may be explained by the fact that females are more likely to be socialized to care about the expectations of others. This finding agrees with Musumeci et al. [35], who suggested that women may have a higher tendency to set high standards for their social interactions and relationships. However, it contradicts with the findings of a study by Cowie et al. [36], who found that men scored slightly higher on OOP and another old study by Hill et al. [37], who found that men scored significantly higher on OOP than women.

Moreover, male students scored higher than female students regarding SPP. This is congruent with the findings of Flett et al. [38] and Cowe et al. [36], who reported that SPP was greater in males than it was in females. However, the difference found in our study was statistically insignificant, suggesting that both males and females experience a comparable degree of pressure from others to be perfect and fear negative evaluation. These findings indicate that gender differences regarding the perfectionism subtype might be affected by the context, which necessitates that education institutions be sensitive to their own contexts and their students’ differences when tailoring student support programs. Surveys might be useful to explore the status of perfectionism among students of different genders before planning to provide support and guidance for students.

The study also examined the relationship between perfectionism and academic achievement. The findings reveal a significant positive correlation between SOP and academic achievement. This suggests that students who hold higher expectations for themselves and strive for perfection in their own performance are more likely to put in the effort to attain higher levels of academic success. These results align with previous studies that have shown a positive relationship between perfectionism and academic achievement [39–42]. However, no significant correlations were found between OOP and SPP and academic achievement, suggesting that the degree to which students hold high expectations for others, feel pressure from others to be perfect, and fear negative evaluation from others is not significantly associated with their level of academic achievement as they focus only on self-imposed standards and personal drive as key factors in academic success. Through identifying students exhibiting high levels of SOP and recognizing their potential for academic success, educational institutions could provide targeted academic support, such as mentorship programs, advanced learning opportunities, or research initiatives, to further nurture the capabilities of high-achieving students. In addition, institutions could implement strategies within the curriculum to help students understand and manage perfectionistic tendencies, including sessions on time management, stress reduction, and techniques to handle academic pressure.

The study findings indicate that there was a statistically significant difference in OOP, with Year 6 students exhibiting higher levels compared to students in other study years. On the other hand, there were no statistically significant differences in SOP and SPP across study years. An explanation may be that studying in medical schools is consistently difficult over the different study years, making the students focus only on working hard to avoid negative evaluations and pressures from others. However, as they progress in their medical education, they are exposed to more collaborative work, interprofessional interactions, and higher levels of responsibility which could contribute to the development of higher expectations for others and a heightened focus on their performance. In a longitudinal cohort study, Eley et al. [43] observed continued increase of perfectionism among medical students to the final study year.

This study has a few limitations. First, it was conducted among undergraduate medical students from a single institution in Saudi Arabia, which may limit the generalizability of the findings to other populations. Studies that are conducted in several institutions (multicenter or nationwide studies) with a bigger and more diverse sample size would have a greater chance of generalizability of their findings. Second, the impact of perfectionism on other important outcomes, such as mental health and well-being, was not examined. Further research is needed to study the impact of perfectionism on mental health and well-being of medical students to help them avoid stress and burnout related to the study of medicine. Third, employing a cross-sectional design limits the ability to draw conclusions about the causal relationships between perfectionism and academic achievement. Lastly, the study did not examine the potential role of other factors, such as learning styles and personality traits, in the relationship between perfectionism and academic achievement. Longitudinal, in-depth designs could be employed to explore different factors related to academic achievement, as well as the positive and negative impacts of perfectionism on educational outcomes.
5. Conclusion

This study provides valuable insights into the prevalence and characteristics of perfectionism among medical students. The findings of this study suggest that perfectionism is prevalent among medical students, with SOP being the most prevalent subtype. Females tend to have higher OOP than males, and students in Year 6 tend to have higher OOP than students in other study years.

The study also found a significant positive correlation between SOP and academic achievement, suggesting that students who hold higher expectations for themselves and strive for perfection in their own performance are more likely to put in the effort to attain higher levels of academic success.

This study suggests that educators must be aware of the prevalence of perfectionism among medical students, as it can affect students' well-being and academic performance. Educators should encourage students to strive for excellence without being overly perfectionistic. Moreover, they should foster a growth mindset, provide constructive feedback, and create supportive learning environments to mitigate perfectionism's negative effects among students. These findings can also be used by educational institutions to develop and implement targeted interventions and support systems to reduce the negative effects of perfectionism, create a healthier and more nurturing learning environment for medical students, and promote student well-being and academic success.

Conflicts of interest

None.

Other disclosure

None.

Ethical approval

The study was approved by the college's Institutional Research Review Board (REF No: H-05-11072019).

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