

# Academic Performance for Undergraduate Dental Students at Qassim University, in Relation to Multidimensional Perfectionism, and Behavioral Professionalism: An Exploratory Study

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## ABSTRACT

**Objectives:** Assessing multidimensional perfectionism and behavioral professionalism among undergraduate dental students and exploring students' academic performance in relation to their professional attitudes and behaviors, multidimensional perfectionism traits and gender.

**Materials and methods:** All undergraduate students were invited to complete two anonymous forms for multidimensional perfectionism and behavioral professionalism. Academic performance was detected through students' cumulative grade point average (CGPA) after final exams. Statistical analyses were carried out at  $p < 0.05$  and  $0.01$ .

**Results:** Students rated themselves as being highest in self-oriented perfectionism (SOP), then socially-prescribed perfectionism (SPP) and other-oriented perfectionism (OOP), with 36.4% categorized as adaptive perfectionists, 27.07% maladaptive perfectionists and 36.68% non-perfectionists. For professionalism, "I demonstrate excellent skills in this area" was the highest percentage of students' responses (38.62%). The majority of students (48.91%) got 3–4 CGPA. Male students reported higher mean OOP and SPP characteristics (67.92 + 12.11 and 70.41 + 12.43, respectively) than females. Female students showed higher mean CGPA (2.85 + 0.391) than males ( $t$ -test = -11.969,  $p = 0.000$ ). A strong negative correlation was detected between perfectionists and SOP, behavioral professionalism as well as CGPA. Female students, who carry high SOP characters, with adaptive perfectionistic characteristics and achieved higher CGPA scores tend to seek challenges and improve themselves, they would 1.0 time further strive to achieve greater productivity than males with OOP and SPP traits.

**Conclusion:** Students with adaptive perfectionistic characteristics were significantly had higher CGPAs. Female students, who had high SOP traits, with adaptive perfectionistic characteristics achieved higher CGPA and be susceptible to pursue challenges and be perfect than their male counterparts with OOP and SPP characteristics.

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## INTRODUCTION

Perfectionism and professionalism are core competencies in dentistry that have an impact on all aspects of clinical education.

Perfectionism is commonly depicted as the propensity to hold and track extremely high standards for oneself.<sup>1</sup> Furthermore, perfectionists have a tendency to focus on their deficiencies and past failures in a retributive manner<sup>2</sup> and equate self-worth with performance.<sup>3</sup> Some researchers proposed that perfectionism may be a positive impetus for achievement and only problematic when the person is unable to modify standards in accord with the situation.<sup>4,5</sup> This perspective proposes that a distinction should be created between "healthy" striving and an "unhealthy" extreme, which is associated with physiological and psychological problems. Contrary to the positive aspects of perfectionism, perfectionism is related to a number of difficulties comprising low self-esteem, shame, guilt,<sup>1,4</sup> anxiety,<sup>6</sup> depression,<sup>7,8</sup> indecisiveness,<sup>9</sup> eating disorders,<sup>10</sup> in addition to deficits in social skills.<sup>5</sup>

Consequently, perfectionism is a personality character perceived by striving for excellence and establishing tremendously high standards of performance associated with extremely critical evaluations of an individual's behavior.<sup>11,12</sup> However, perfectionism has several aspects, and there are various dimensions of perfectionism with different characteristics.<sup>13</sup>

Traditionally perfectionism has been regarded as a maladaptive personality feature,<sup>3,13,14</sup> although some investigators have suggested that some forms of perfectionism may be healthy or adaptive.<sup>13</sup> Enquiry about how

can perfectionism be both adaptive and maladaptive? The response persists in the sureness that perfectionism is a multidimensional and multi-aspect personality trait.<sup>11,12,15,16</sup>

Concerning multidimensional perceptions of perfectionism, one of the most widely researched and influential models is Hewitt and Flett,<sup>12</sup> models that revealed the need to take into consideration both personal and interpersonal constituents of perfectionism. Their conceptualization presented three trait dimensions: self-oriented perfectionism, other-oriented perfectionism, and socially-prescribed perfectionism. Whilst self-oriented perfectionism concentrates on extreme personal standards, other-oriented perfectionism encompasses requiring that other people meet extreme standards. Socially-prescribed perfectionism is the recognition, that other people or possibly society, in general, are enforcing demands for perfection on the self. Perfectionism is perceived here as a personality character that has cognitive and motivational components. Self-oriented perfectionism integrates the tenacious and relentless struggling of people motivated to be perfect and socially-prescribed perfectionism revealing a lack of motivation due to the concept of helplessness and hopelessness that is often discovered among people who are subjected to unrealistic and unfair expectations.<sup>17,18</sup>

The expression professionalism can commonly be described as the degree to which a member of a specific occupation depicts qualities or features valued by that profession.<sup>19</sup> Professionalism is defined by Merriam-Webster as "the conduct, aims, or qualities that characterize or mark a profession or a professional person".<sup>20</sup> While the term "professional" has a long history in health education scholarship, "professionalism" is a newer word, appearing first in a scholarly literature in 1968.<sup>21</sup>

Behavioral professionalism could be identified as "behaving in a manner to potentially achieve optimal outcomes in professional tasks and interactions."<sup>22</sup>

Attention for professionalism should be at the heart of dental education and lifelong practice. "good doctoring" exceeds high intelligence and technical proficiency in demanding professional behavior.<sup>23</sup> William Sullivan stated that "Professional education is above all a shaping of the person."<sup>24</sup> Though dental schools exist in large part to "raise student knowledge and improve skills,"<sup>24</sup> their highly important mission is to ensure student acquirement and consistent demonstration of the "traits of professionalism."<sup>23-25</sup> These traits offer the binding constituents for the creation of a unique person, the dentist.

Professionalism is a substantial constituent of medicine's contract with society. Not only do we need to make good decisions for our patients based on the evidence

in the literature, but we also need to apply those decisions in a way that is professional and eventually helps our patients.<sup>26</sup> Recently, the need for continued work in this area to appraise medical professionalism has been highlighted in medical education.<sup>27-29</sup> Despite continuing debate, there is widespread agreement that medical professionalism comprises traits as respect for patients, humanism, and honesty, traits that can be expressed during doctor/patient meetings.<sup>28</sup>

Numerous studies have utilized a student's cumulative GPA as a measure of academic achievement and performance at the university level.<sup>30-33</sup> Previous studies demonstrated that perfectionistic strivings displayed positive correlations with academic achievement, where they reported, "In medical students, perfectionistic strivings demonstrated a positive correlation with self-reported medical school performance in the preceding academic year".<sup>34,35</sup> Furthermore, in undergraduate students, those categorized as adaptive perfectionists with high perfectionistic strivings and low perfectionistic concerns revealed a higher GPA than maladaptive perfectionists, i.e., those with high perfectionistic strivings and high perfectionistic concerns, and non-perfectionists, those having low perfectionistic strivings.<sup>36,37</sup> Lastly, concerning performance in a mid-term exam, undergraduate students with higher levels of perfectionistic strivings obtained higher grades than those with lower levels of perfectionistic strivings.<sup>38</sup> Moreover, adaptive perfectionism is assumed to have a positive association with achievement. Flett, et al.<sup>39</sup> discovered an association between high personal standards and high academic achievement at school. In addition, Accordino, et al.,<sup>40</sup> in their study discovered that having high personal standards was positively and significantly associated with GPA, and reinforces the idea that students with adaptive forms of perfectionism tend to have higher levels of achievement. Concerning the perception of Flett and Hewitt, self-oriented perfectionism is considered as the most relevant to achievement-related outcomes at school.<sup>41</sup>

Papadakis et al.<sup>42</sup> registered that unprofessional behaviors in pre-doctoral medical education were associated with later disciplinary action. Additionally, they found that physicians trained by state medical boards had lower pre-doctoral GPAs, proposing that academic performance correlates with professional behaviors. The additional study detected that students with professional behaviors had higher GPAs and better clerkship assessments.<sup>43</sup>

To date, no information is available about the status of self-reported professional attitudes and behaviors as well as perfectionism among undergraduate dental

students and how the three trait dimensions of multidimensional conceptions of perfectionism and behavioral professionalism affect the academic performance of the students in the form of their GPA. Thus, the purpose of this study was to assess the multidimensional perfectionism scale and self-reported behavioral professionalism among undergraduate dental students in the College of Dentistry, Qassim University, Kingdom of Saudi Arabia, and to explore students' academic performance in relation to their professional attitudes and behaviors, multidimensional perfectionism as well as gender. The outcomes achieved would serve as baseline data to establish programs to foster professional behaviors and attitudes among undergraduate dental students and to encourage adaptive perfectionistic characteristics to create an outstanding dentist not only from the professional perspective but also in terms of perfectionism.

## MATERIAL AND METHODS

A cross-sectional study was conducted in College of Dentistry, Qassim University, Kingdom of Saudi Arabia. The undergraduate course is five years with the third, fourth and fifth years consisting of clinical training along with didactic courses. Professionalism Competency Unit was established in the College in the academic year 2014/2015 to monitor the application of professional attitudes and behaviors in the clinics among undergraduate dental students. Approval was obtained from the Dental Ethics Committee for the study protocol before initiating the study.

Data were collected during the spring semester of the academic year 2015/2016 at the end of whole class lectures. All students enrolled in each of the five undergraduate academic levels were invited to participate in the study. Thus, a total of 257 undergraduate dental students were asked to complete two anonymous forms, one for multidimensional perfectionism and the other for behavioral professionalism. The purpose of the study was communicated well in advance to the students, and student participation in the research was voluntary.

To assess levels of multidimensional perfectionism in undergraduate dental students the multidimensional perfectionism scale (HFMPs)<sup>12,18</sup> was used and to evaluate professional attitudes and behaviors among the contributors the self-reported behavioral professionalism assessment form<sup>44</sup> was applied, this is to investigate their relationship with students' academic performance and gender.

### The Hewitt and Flett Multidimensional Perfectionism Scale (HFMPs)<sup>17,18</sup>

The HFMPs has three 15-item subscales, SOP, OOP, and SPP. Students were asked to rate their degree of agree-

ment with the items based on a 7-point Likert-type scale. Several items are reverse-keyed, and the subscales are scored such that higher scores reflect greater perfectionism. Generally, having high SOP is associated with greater productivity, success in career, and conscientiousness (e.g., "One of my goals is to be perfect in everything I do"). Having high OOP may lead to problems delegating to others, being seen by others as highly critical/judgmental (e.g., "If I ask someone to do something, I expect it to be done flawlessly"). Finally, having high SPP is associated with greater risk of anxiety, depression and even suicide risk if the person experiences a major barrier and is unable to put the criticism in perspective (e.g., "The better I do, the better I am expected to do"). Internal consistency assessment yielded a Cronbach's  $\alpha$  of 0.857 for the subscale of SOP, 0.784 for OOP, and 0.795 for SPP, which is almost consistent with that of Hewitt and Flett, 1991.<sup>12</sup>

Students also were categorized into adaptive perfectionists, those with high perfectionistic strivings and low perfectionistic concerns; maladaptive perfectionists, students with high perfectionistic strivings and high perfectionistic concerns, and non-perfectionists, those students with low perfectionistic strivings.<sup>15</sup>

### Self-reported Behavioral Professionalism Assessment Form<sup>44</sup>

The students were asked to rate themselves in the areas of behavioral professionalism. The rating scale used was a 5-point Likert-type scale with response options ranging from "1 = I need significant improvement in this area" to "5 = I demonstrate excellent skills in this area", and an "N" rating = "Not enough evidence to evaluate" was also offered as a response option. Mean scores on each item were calculated to determine a "mean" professionalism score for each student and "N" rating = 0. Internal consistency assessment generated a Cronbach's  $\alpha$  of 0.898.

### Academic Performance

Academic performance of the students was detected through students' CGPA after the final exams of that semester. The CGPA of each participating student functioned as the independent variable of the study. Based on a 5-point scale, the GPA can range from 0–5.00. In the current study, the range of GPA for the contributors was 2.48 to 4.94 with a mean of 3.92 and standard deviation + 0.66.

### Statistical Analysis

Statistical analysis was conducted using the statistical package for social sciences program (SPSS 19.0

for Windows, SPSS Inc., Chicago, USA). All statistical analyses were carried out at a significance level less than 0.05 and 0.01. The data were analyzed and subjected to descriptive statistics like frequencies, percentages, means and standard deviations. Independent samples t-test and one-way analysis of variance (ANOVA) test were performed to compare studied variables in relation to Gender, level of education and students' performance. Post hoc least-significant difference (LSD) tests were conducted for those ANOVAs comparing more than two means. Pearson's correlation coefficient was used to investigate associations between variables, and finally, stepwise linear regression analysis was employed to figure out which factors that have the main effect on the studied condition.

**RESULTS**

In the current study, 229 dental students have properly completed the forms (57.6% males and 42.4% females) while 28 forms had several uncompleted sections and were thus rejected yielding a response rate of 87.93%. The participants' age ranged from 19–26 years (mean = 21.79, SD = +1.58) and they were either in the 1st (23.1%), 2nd (23.1%), 3rd (17.0%), 4th (17.5%), or 5th (19.3%) levels of undergraduate education.

For the multidimensional perfectionism scale, the participating students as a whole rated themselves as being highest in self-oriented perfectionism (mean = 81.44, SD = +14.64), then socially-prescribed perfectionism (Mean = 67.08, SD = +12.79) and lowest in other-oriented perfectionism (Mean = 65.65, SD = +12.34), with 36.4% categorized as adaptive perfectionists, 27.07% maladaptive perfectionists and 36.68% non-perfectionists. Concerning the self-reported behavioral professionalism score, the highest percentage of students' responses was for the trait "I demonstrate excellent skills in this area" (38.62%), followed by "I demonstrate very good skills in this area" then "I demonstrate satisfactory skills in this area" (30.20% and 20.73%, respectively). Regarding students' academic performance, the majority of students (48.91%) got 3–4 CGPA (Table 1).

Table 2 represents the means and standard deviations of Multidimensional Perfectionism and Behavioral Professionalism listed in descending order as well as the percentage of students rating high characteristics and traits. With regard to multidimensional perfectionism scale (HFMPs), the item "It makes me uneasy to see an error in my work", SOP constituted the highest mean (6.01 + 1.45) with 84.28% of the contributing students rating this item. For SPP, the highest mean (5.93 + 1.44) was for the item "My family expects me to be perfect", also 84.28% of

**Table 1:** Multidimensional Perfectionism, Perfectionists, Behavioral Professionalism and Academic Performance among the studied group

Variables	Mean (+SD)
Multidimensional perfectionism (N = 229)	Self-oriented perfectionism 81.44 (+14.64)
	Other-oriented perfectionism 65.65 (+12.34)
	Socially-prescribed perfectionism 67.08 (+12.79)
Variables	N (%)
Perfectionists (N = 229)	Adaptive perfectionists 83 (36.24%)
	Maladaptive perfectionists 62 (27.07%)
	Non-perfectionists 84 (36.68%)
Variables	N (%)
Self-reported behavioral professionalism score <sup>(a)</sup> (N = 5725)	Not enough evidence to evaluate. 52 (0.91%)
	I need significant improvement in this area. 166 (2.90%)
	I need improvement in this area. 380 (6.64%)
	I demonstrate satisfactory skills in this area. 1187 (20.73%)
	I demonstrate very good skills in this area. 1729 (30.20%)
	I demonstrate excellent skills in this area. 2211 (38.62%)
Cumulative GPA (N = 229)	> 3 9 (3.93%)
	3–4 112 (48.91%)
	< 4 108 (47.16%)

(<sup>a</sup>) Multiple response

the students rating this item, and for OOP just one item (I have high expectations for the people who are important to me, mean = 5.40, SD = +1.48) had rating more than 70% (74.67%). The highest means for self-reported behavioral professionalism was for the traits "Wears appropriate attire", "respectful", and "behaves in an ethical manner" (4.65 + 0.74, 4.56 + 0.86 and 4.45 + 0.76, respectively) with percentages of 92.14%, 92.58% and 92.14%, respectively.

Table 3 reveals multidimensional perfectionism scale, behavioral professionalism and students' academic performance in relation to gender. A statistically significant difference was found by gender for OOP (t-test = 2.90, p = 0.004) and for SPP (t-test = 3.56, p = 0.000) where male students reported higher mean OOP and SPP characteristics (67.92 + 12.11 and 70.41 + 12.43, respectively) than female students. Also, with respect to Students' Academic Performance in the form of their CGPA, a statistically significant difference was found where female students showed higher mean CGPA (2.85 + 0.391) than male students (t-test = -11.969, p = 0.000).

In Table 4, one-way analysis of variance (ANOVA) test was performed between groups to compare level of education and students' academic performance with multidimensional perfectionism and behavioral profes-

**Table 2:** Mean multidimensional perfectionism and behavioral professionalism listed in descending order and percentage of students rating high characteristics and traits

Item #	Items	Mean (+ SD) listed in descending order	% of students rating high characteristics and traits more than 70%
<i>Multidimensional perfectionism</i>			
<i>Self-oriented perfectionism</i>			
23	It makes me uneasy to see an error in my work	6.01 (+ 1.45)	84.28
15	It is very important that I am perfect in everything I attempt	5.92 (+ 1.38)	86.46
1	When I am working on something, I can't relax until it is perfect	5.86 (+ 1.35)	85.15
42	I must always be successful at school or work	5.82 (+ 1.48)	82.97
14	I strive to be as perfect as I can be	5.70 (+ 1.63)	80.79
17	I strive to be the best at everything I do	5.62 (+ 1.55)	76.86
6	One of my goals is to be perfect in everything I do	5.60 (+ 1.68)	78.60
28	I am perfectionistic in setting my goals	5.57 (+ 1.60)	79.04
40	I set very high standards for myself	5.48 (+ 1.56)	79.04
8	I never aim for perfection on my work	5.39 (+ 1.98)	71.18
<i>Other-oriented perfectionism</i>			
16	I have high expectations for the people who are important to me	5.40 (+ 1.48)	74.67
<i>Socially-prescribed perfectionism</i>			
35	My family expects me to be perfect	5.93 (+ 1.44)	84.28
11	The better I do, the better I am expected to do	5.61 (+ 1.59)	78.60
18	The people around me expect me to succeed at everything I do	5.56 (+ 1.35)	79.91
37	My parent rarely expected me to excel in all aspects of my life	5.34 (+ 2.05)	71.18
<i>Self-reported behavioral professionalism</i>			
23	Wears appropriate attire	4.65 (+ 0.74)	92.14
11	Respectful	4.56 (+ 0.86)	92.58
5	Behaves in an ethical manner	4.54 (+ 0.76)	92.14
2	Practices personal hygiene	4.46 (+ 0.86)	86.90
1	Reliable and dependable	4.25 (+ 0.92)	82.53
24	Demonstrates confidence	4.23 (+ 0.89)	81.66
4	Empathetic	4.22 (+ 0.94)	80.35
13	Demonstrates accountability	4.18 (+ 0.87)	79.91
21	Diplomatic	4.14 (+ 0.95)	78.60
20	Cooperative	4.05 (+ 1.00)	71.62
22	Follows through with responsibilities	4.02 (+ 1.00)	74.67
3	Produces quality work	4.01 (+ 0.93)	76.86

sionalism. With regard to the level of education, a statistically significant difference was reported for HFMPs in the form of OOP and SPP ( $F = 5.185, p = 0.001$  and  $F = 2.450, p = 0.047$  respectively). For OOP, Post Hoc LSD test revealed that the 5th year students registered higher mean OOP scores than the 1st, 2nd and 4th levels of education. Concerning SPP, Post Hoc LSD test demonstrated that 5th-year students had higher mean SPP scores than the 1st, 2nd, and 4th-year students. Furthermore, a statistically significant difference was found in behavioral professionalism with regard to the level of education ( $F = 4.720, p = 0.001$ ) where 1st and 2nd-year students had lower mean scores than 3rd, 4th and 5th levels. Regarding students' academic performance, a statistically significant difference was reported for HFMPs in the form of SOP ( $F = 7.880, p = 0.000$ ), where the students who achieved CGPA more than 4 registered higher SOP mean scores than those students who attained CGPA between 3 and 4.

Table 5 represents Pearson's correlation coefficient between different studied variables. The results revealed a strong correlation between the level of undergraduate study and HFMPs in the form of OOP and SPP subscales ( $r = 0.16, p = 0.018$  and  $r = 0.19, p = 0.004$ , respectively). Moreover, a strong correlation was found between CGPA of students and Gender as well as SOP subscale ( $r = 0.67, p = 0.000$ , and  $r = 0.30, p = 0.000$ , respectively). In addition, behavioral professionalism was strongly correlated to the three subscales of HFMPs (SOP, OOP and SPP),  $r = 0.52, 0.34$  and  $0.24$ ;  $p = 0.000, 0.000$  and  $0.000$  respectively. Finally, a strong negative correlation was detected between perfectionists and Gender, SOP, Behavioral Professionalism as well as Academic Performance of the participating students ( $r = -0.15, p = 0.024$ ;  $r = -0.57, p = 0.000$ ;  $r = -0.28, p = 0.000$  and  $r = -0.26, p = 0.000$ , respectively).

Graph 1 depicts the correlation between perfectionists and gender, SOP, behavioral professionalism as well as academic performance. A negative correlation was found between Perfectionists and the studied variables.

Data in Table 6 illustrates the effect of each independent variable in relation to students' academic performance in the form of their CGPA. It was detected that out of seven variables studied, only three variables were statistically associated with the CGPA which are gender, perfectionists and self-oriented perfectionism. Gender was the first best predictor variable of CGPA. male students were 33.0 times at higher risk to get lower grades in the form of lower CGPA than female students. The second predictor variable was perfectionists. Female students who possessed adaptive perfectionistic traits were more committed to perfectionistic striving characteristics as they had more balanced thinking, striving for success,

**Table 3:** Independent samples t-test for the studied variables in relation to gender

Test variables	Gender	Mean (+ SD)	t-test	sig.	
Multidimensional perfectionism	Self-oriented	Male (N = 132)	79.85 (+ 14.66)	-1.93	0.055
		Female (N = 97)	83.61 (+ 14.40)		
	Other-oriented	Male (N = 132)	67.92 (+ 12.11)	2.90*	0.004
		Female (N = 97)	63.37 (+ 11.15)		
	Socially-prescribed	Male (N = 132)	70.41 (+ 12.43)	3.56*	0.000
		Female (N = 97)	65.00 (+ 9.71)		
Self-reported behavioral professionalism score	Male (N = 132)	97.75 (+ 14.41)	-0.40	0.691	
	Female (N = 97)	98.51 (+ 13.90)			
CGPA	Male (N = 132)	2.13 (+ 0.485)	-11.969*	0.000	
	Female (N = 97)	2.85 (+ 0.391)			

\* $p < 0.01$ **Table 4:** One-way ANOVA between groups comparing level of education and students' academic performance with multidimensional perfectionism and behavioral professionalism

Level of education		Sum of squares	Mean square	F	Sig.
Multidimensional perfectionism	Self-oriented	2002.058	500.515	2.393	0.052
	Other-oriented	2736.299	684.075	5.185	0.001**
	Socially-prescribed	1295.921	323.980	2.450	0.047*
Self-reported behavioral professionalism		3557.771	889.443	4.720	0.001**
CGPA					
Variable		Sum of squares	Mean square	F	Sig.
Multidimensional perfectionism	Self-oriented	3184.285	1592.142	7.880	0.000*
	Other-oriented	334.864	167.432	1.184	0.308
	Socially-prescribed	740.758	370.379	2.774	0.065
Self-reported behavioral professionalism		826.368	413.184	2.078	0.128

\* $p < 0.05$ \*\* $p < 0.01$ 

sense of self-independent of performance and timely completed their tasks, and they achieved 9.5% higher CGPA than maladaptive and non-perfectionistic male students. SOP was the third predictor variable. Female students, who bore high SOP traits, with adaptive perfectionistic characteristics and earned higher CGPA scores tend to seek challenges and improve themselves, they spend effort in learning and understanding their courses, and they would 1.0 time more strive to achieve higher productivity, success in career, and conscientiousness than male students with OOP and SPP characters.

## DISCUSSION

Perfectionism is generally portrayed as the predisposition to hold and pursue exceedingly high standards for oneself.<sup>1</sup> It is a multidimensional and multi-aspects personality characteristic,<sup>11,12,15,16</sup> whereas professionalism is "a caring and humanitarian activity that respects patients and colleagues and strives to give something back to community and profession."<sup>45</sup> Although there has been much published on the subjects of perfectionism<sup>46-50</sup> and professionalism,<sup>51-55</sup> to the authors' knowledge, there are

no empiric data reported in the dental literature concerning the influence of multidimensional perfectionism and behavioral professionalism on the development of the undergraduate dental student.

The present study investigated the multidimensional perfectionism scale and self-reported behavioral professionalism among undergraduate dental students and explored students' academic performance represented by their CGPA in relation to their professional attitudes and behaviors, multidimensional perfectionism as well as gender.

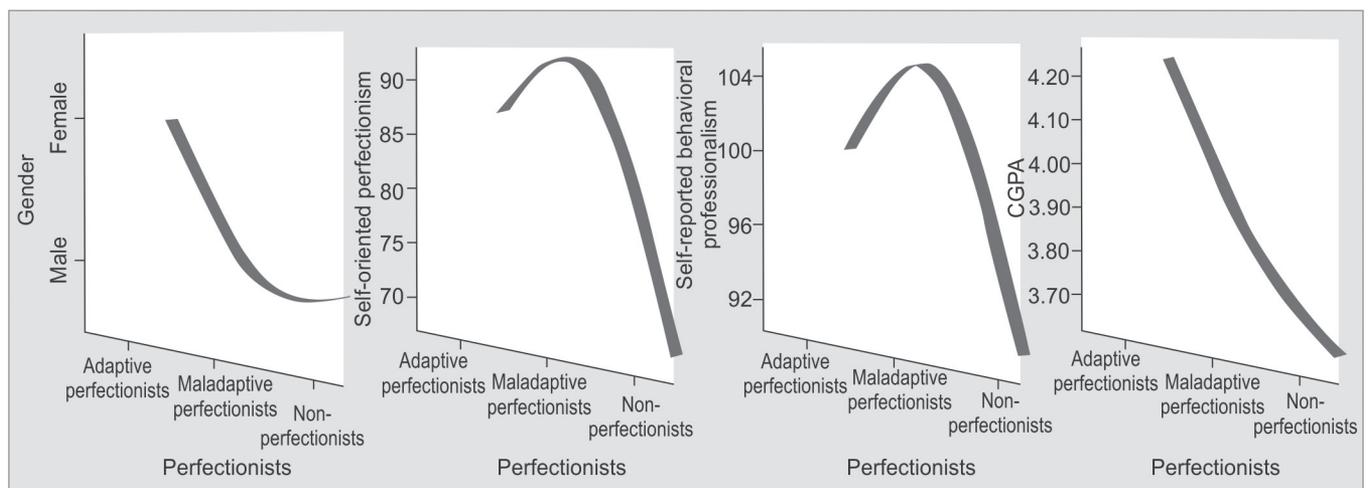
Analysis of the results revealed that the contributing students assessed themselves as being highest in self-oriented perfectionism subscale, followed by socially-prescribed and the least rating was for those carrying the characteristics of other-oriented perfectionism subscale. SOP embraces beliefs that striving for perfection and being perfect are important and is characterized by setting extremely high standards for oneself.<sup>12,18,56</sup> The findings of the current study are partially in agreement with a previous research carried out by Henning et al.,<sup>57</sup> on students in health profession (medical, dental,

**Table 5:** Pearson correlation coefficient between different studied variables (N = 229)

		Gender	Level of education	SOP	OOP	SPP	Perfectionists	Self-reported behavioral professionalism	CGPA
Gender	r								
	p								
Level of education	r	0.03							
	p	0.703							
SOP	r	0.13	-0.03						
	p	0.055	0.653						
OOP	r	-0.16*	0.16*	0.44**					
	p	0.016	0.018	0.000					
SPP	r	-0.18**	0.19**	0.35**	0.49**				
	p	0.007	0.004	0.000	0.000				
Perfectionists	r	-0.15*	0.09	-0.57**	-0.07	0.08			
	p	0.024	0.197	0.000	0.280	0.211			
Self-reported behavioral professionalism	r	0.03	0.07	0.52**	0.34**	0.24**	-0.28**		
	p	0.691	0.297	0.000	0.000	0.000	0.000		
CGPA	r	0.67**	-0.01	0.30**	0.02	-0.04	-0.26**	0.13	
	p	0.000	0.836	0.000	0.802	0.586	0.000	0.051	

\*Correlation is significant at the 0.05 level (2-tailed)

\*\*Correlation is significant at the 0.01 level (2-tailed)



**Graph 1:** Correlation between perfectionists and gender SOP, behavioral professionalism as well as academic performance

**Table 6:** Significant variables related to students' academic performance-based on linear regression analysis

Model	Variables	Unstandardized coefficients	Standardized coefficients	R <sup>2</sup>	R <sup>2</sup> change	t	p-value
		B	Beta				
1	(Constant)	2.829		0.330	0.330	25.995	0.000
	Gender	0.763	0.574				
2	(Constant)	3.398		0.425	0.095	10.341	0.000
	Gender	0.701	0.528				
	Perfectionists	-0.240	-0.312				
3	(Constant)	2.846		0.435	0.010	10.291	0.000
	Gender	0.694	0.522				
	Perfectionists	-0.186	-0.242				
	SOP	0.006	0.124			2.040	0.043

Dependent variable: CGPA

nursing and pharmacy students), where the students rated themselves as being highest in SOP subscale followed by OOP and the lowest rate was recorded for SPP subscale, and another study conducted by Enns et al.,<sup>34</sup> in which medical students had higher personal standards (higher SOP scores) and lower doubts about actions (OOP followed by SPP).

As OOP comprises necessitating that other people meet extreme standards and SPP encompasses beliefs that others have high standards for oneself and that acceptance by others is conditional on accomplishing these standards,<sup>12,13,18,56</sup> results of this study explored a significant negative correlation between OOP as well as SPP and gender in addition to positive correlation with level of education where male students at higher levels of education tended more toward demanding perfection from others,<sup>58</sup> and they believed that others expected them to be perfect and that they have to meet these expectations,<sup>12,18</sup> as this category of students may see their high standards as imposed by others and that they may equally have high expectations of others.<sup>12</sup>

In accordance with previous findings, the outcome of this study generally revealed that perfectionists do have higher GPAs than non-perfectionists,<sup>36,37,59</sup> and maladaptive perfectionists. More specific, those students bearing traits of high perfectionistic strivings and low perfectionistic concerns, i.e. adaptive perfectionists, were significantly had higher GPAs than their classmates who were carrying other characteristics as high perfectionistic strivings and high perfectionistic concerns (maladaptive perfectionists); and those with low perfectionistic strivings (nonperfectionists).<sup>15</sup> In contrast, the results of the current study are inconsistent with that of a previous one where no significant relationship was detected between perfectionism and cumulative GPA.<sup>60</sup>

In agreement with the previous finding that perfectionistic strivings display positive relationships with academic achievement, results of this study discovered that SOP positively predicted students' academic performance as well as perfectionistic characteristics and students' gender. Female students, who exhibited high SOP traits, with adaptive perfectionistic characteristics and got higher CGPA scores tend to strive for challenges and improve themselves, they employ their efforts in learning and understanding their courses, and they would 1.0 time more struggle to attain greater productivity, success in career, and conscientiousness than male students who showed other perfectionistic characteristics. Additionally, it was found that SPP and OOP subscales were unrelated to students' performance when bivariate correlations were concerned. This result is partially in agreement with the findings of Stoeber et al.,<sup>50</sup> as no

correlation was detected between socially prescribed perfectionism and exam performance when bivariate correlations were regarded. Furthermore, these findings are in accord with the outcome of previous studies where they found that in undergraduate students, those classified as adaptive perfectionists showed a higher grade point average (GPA) than maladaptive perfectionists and non-perfectionists.<sup>36,37</sup> Likewise, the findings of the present study are consistent with the results of Pishghadam and Akhondpoor,<sup>61</sup> and Roohafza,<sup>62</sup> in Iran as well as that of Conroy, 2003,<sup>63</sup> in Northeastern University, where an association between perfectionism and academic achievement had been discovered. According to these investigations, though both adaptive and maladaptive perfectionists strive to achieve, it is proposed that maladaptive perfectionism has a negative impact on academic achievement, whereas adaptive perfectionism can have a positive impact.

In the current study, though a negative correlation was demonstrated between behavioral professionalism and perfectionistic characteristics as students with adaptive perfectionistic characteristics were more committed to professional behaviors as wearing appropriate attire, being respectful and behaving in an ethical manner as well as practicing personal hygiene, in relation to maladaptive and nonperfectionistic students, no correlation was detected between behavioral professionalism and students' academic performance meaning that professionalism did not affect students' CGPA, this may be due to the fact that dental students at Qassim University are practicing attitudes and behaviors of professionalism as a daily requirement to fulfill their presence in the clinics and patient treatment. This outcome is inconsistent with the finding of Snider and Johnson,<sup>64</sup> where they reported that a correlation was found between professional behaviors and academic achievement in medical students. Also, the findings of this study are not in accord with that of Murden et al.,<sup>43</sup> where they discovered that students with professional behaviors had higher GPAs and superior clinical appraisals.

Results of this study revealed that more than two thirds of the contributing students registered that they demonstrated "excellent" as well as "very good" skills in different areas of behavioral professionalism; this appeared through their commitment toward professional dressing, ethical behavior, personal hygiene, self-improvement, and adaptability, in addition to reliability and responsibility. This result is supported by the published literature that suggests that some features of professionalism can be introduced through curricular content,<sup>19,65</sup> but learning via experience and application of professional attitudes and behaviors within the

undergraduate dental clinics are also important factors in student professional development and this is actually applied to the participating students in this research as 3rd, 4th and 5th year students are observed and assessed in the clinics by delegates from the professionalism competency unit during their clinical training sessions. On the other hand, it is important to perceive that the scoring of behavioral professionalism in this study was based on data that were self-reported. This could have resulted somewhat in higher scores than expected if an objective reviewer (for example the delegates in the dental clinics) assessed student professionalism. Additionally, the questions were not weighted, meaning that the same weight was given to all items and this may need to be handled in future studies.

### Limitations

This study is an exploratory one and as such, it has limitations that should be addressed during future researches. The first limitation is the use of self-reported questionnaires as a measure for multidimensional perfectionism and behavioral professionalism. A planned interview with the participating subjects would be a better instrument to prevent the subjective perception of the participant in responding to the self-report questionnaires, but it would be also more time to consume for the investigator. The second limitation is that the sample chosen for this study represents a small population of dental students from a single university and thus may not be representative of all dental students in the Kingdom of Saudi Arabia. Future evaluations should assess students from a more diverse geographic area as well as curricula, and if possible, a comparative group should be included. Further studies should be conducted on other populations of dental students putting in consideration to address the limitations encountered in the present study to achieve generalizability.

### CONCLUSION

Based on the findings of the current study, the dental students considered themselves as being highest in the characteristics of SOP. Students with adaptive perfectionistic characteristics were significantly had higher GPAs than their colleagues with maladaptive perfectionistic traits and non-perfectionists. SOP positively predicted students' academic performance in addition to perfectionistic characteristics and students' gender. Female students, who had high SOP characters, with adaptive perfectionistic traits and achieved higher CGPA scores, be susceptible to pursue challenges and be perfect. No correlation was found between Behavioral Professional-

ism and students' academic performance meaning that the professionalism did not affect students' CGPA, this may be because dental students in Qassim University are applying attitudes and behaviors of professionalism as a regular obligation to comply with their presence in the undergraduate clinics. Taken together, the outcomes denote that students who strive for perfection attain a higher GPA than students who do not strive for perfection. Furthermore, they attain better exam results, which indicates that perfectionistic strivings may be positively associated with performance in exam situations. Despite the limitations of the current study, the findings make an important contribution to the literature on multidimensional perfectionism and behavioral professionalism among undergraduate dental students in relation to students' academic performance.

### RECOMMENDATIONS

After the success of practicing professionalism in the dental clinics of Qassim University through the professionalism competency unit, it is recommended to generalize this experience to the colleges of dentistry at the national and international levels for the benefits of the dental profession in the graduation of a dentist who is aware about the importance of professionalism and consequently practicing it routinely.

Faculty members and administrators should further promote adaptive traits of perfectionism in the form of SOP and minimizing the other-oriented and socially-prescribed traits specifically among male dental students to be more productive and achieve success in career.

Development of Curricula through focusing on raising students' awareness about the importance of professionalism and aid the students to be more oriented towards the adaptive perfectionistic characteristics as well as strengthen their commitment to practicing professionalism to become a lifestyle, and to commit to apply it in their careers after graduation and practicing the dental profession in society.

### REFERENCES

1. Pacht AR. Reflections on perfection. *American Psychologist* 1984;39(4):386-390.
2. Barrow JC, Moore CA. Group Interventions with Perfectionistic Thinking. *Journal of Counseling & Development* 1983;61(10):612-615.
3. Burns DD. The perfectionist's script for self-defeat. *Psychol Today* 1980;14(6):34-51.
4. Hamachek DE. Psychodynamics of Normal and Neurotic Perfectionism. *Psychology (Savannah, Ga)* 1978;15(1):27-33.
5. Flett GL, Hewitt PL, De Rosa T. Dimensions of perfectionism, psychosocial adjustment, and social skills. *Personality and Individual Differences* 1996;20(2):143-150.

6. Flett GL, Hewitt PL, Dyck D. Self-oriented perfectionism, neuroticism and anxiety. *Personality and Individual Differences* 1989;10(7):731-735.
7. Hewitt PL, Flett GL. Perfectionism and depression: A multidimensional analysis. *Journal of social behavior and personality* 1990;5:423-438.
8. Blatt SJ. The destructiveness of perfectionism. Implications for the treatment of depression. *The American Psychologist* 1995;50(12):1003-1020. Epub 1995/12/01.
9. Frost RO, Shows DL. The nature and measurement of compulsive indecisiveness. *Behaviour Research and Therapy* 1993;31(7):683-692. Epub 1993/09/01.
10. Minarik ML, Ahrens AH. Relations of eating behavior and symptoms of depression and anxiety to the dimensions of perfectionism among undergraduate women. *Cognitive Therapy and Research* 1996;20(2):155-169.
11. Frost RO, Marten M, Lahart C, et al. The dimensions of perfectionism. *Cognitive Therapy and Research* 1990;14(5):449-468.
12. Hewitt PL, Flett GL. Perfectionism in the self and social contexts: conceptualization, assessment, and association with psychopathology. *Journal of Personality and Social Psychology* 1991;60(3):456-470. Epub 1991/03/01.
13. Enns MW, Cox BJ. The nature and assessment of perfectionism: A critical analysis. In G L Flett & P L Hewitt (Eds), *Perfectionism* (pp 33-62) Washington, DC: APA. 2002.
14. Flett GL, Hewitt PL. Perfectionism and maladjustment: An overview of theoretical, definitional, and treatment issues. In P L Hewitt & G L Flett (Eds), *Perfectionism* (pp 5-31) Washington, DC: APA. 2002.
15. Slaney RB, Rice KG, Mobley M, et al. The Revised Almost Perfect Scale. *Measurement and Evaluation in Counseling and Development* 2001;34(3):130-145.
16. Hill RW, Huelsman TJ, Furr RM, Kibler J, Vicente BB, Kennedy C. A new measure of perfectionism: the Perfectionism Inventory. *Journal of personality assessment*. 2004;82(1):80-91. Epub 2004/02/26.
17. Hewitt PL, Flett GL, Turnbull-Donovan W, et al. The Multidimensional Perfectionism Scale: Reliability, validity, and psychometric properties in psychiatric samples. *Psychological Assessment: A Journal of Consulting and Clinical Psychology* 1991;3(3):464-468.
18. Hewitt PL, Flett GL. *The Multidimensional Perfectionism Scale: Manual*. Toronto: Multi-Health Systems, Inc. 2004.
19. Roth MT, Zlatic TD. The American College of Clinical Pharmacy: Development of student professionalism. *Pharmacotherapy*. 2009;29(6):749-756. Epub 2009/05/30.
20. Merriam-Webster's Collegiate Dictionary, 10th ed., Merriam-Webster Inc., Springfield MA. 1997.
21. Masella RS. Renewing professionalism in dental education: overcoming the market environment. *Journal of Dental Education* 2007;71(2):205-216. Epub 2007/02/23.
22. Purkerson DL. Development and Testing of an Instrument to Assess Behavioral Professionalism of Pharmacy Students. Unpublished Dissertation, Purdue University, West Lafayette IN. 1999.
23. Stern DT, Frohna AZ, Gruppen LD. The prediction of professional behaviour. *Medical Education* 2005;39(1):75-82. Epub 2004/12/23.
24. Sullivan WM. *Work and integrity: the crisis and promise of professionalism in America*. 2nd ed San Francisco: Jossey-Bass; 2005.
25. Schour I. Objectives of dental education. *Journal of Dental Education* 1960;24(4):256-260.
26. Epstein RM, Hundert EM. Defining and assessing professional competence. *Jama*. 2002;287(2):226-35. Epub 2002/01/12.
27. Ginsburg S, Regehr G, Hatala R, et al. Context, conflict, and resolution: a new conceptual framework for evaluating professionalism. *Academic medicine: journal of the Association of American Medical Colleges* 2000;75(10 Suppl):S6-S11. Epub 2000/10/14.
28. Arnold L. Assessing professional behavior: yesterday, today, and tomorrow. *Academic medicine : journal of the Association of American Medical Colleges* 2002;77(6):502-515. Epub 2002/06/14.
29. Veloski JJ, Fields SK, Boex JR, et al. Measuring professionalism: a review of studies with instruments reported in the literature between 1982 and 2002. *Academic medicine : journal of the Association of American Medical Colleges*. 2005;80(4):366-370. Epub 2005/03/29.
30. Burger JM. Desire for control and academic performance. *Canadian Journal of Behavioural Science* 1992;24(2):147-55.
31. Svanum S, Zody ZB. Psychopathology and college grades. *Journal of Counseling Psychology* 2001;48(1):72-76.
32. McKenzie K, Gow K, Schweitzer R. Exploring the first year academic achievement through structural equation modelling. *Higher Education Research & Development* 2004;23(1):95-112.
33. Nguyen NT, Allen LC, Fraccastoro KA. Personality Predicts Academic Performance: Exploring the moderating role of gender. *Journal of Higher Education Policy and Management*. 2005;27(1):105-117.
34. Enns MW, Cox BJ, Sareen J, et al. Adaptive and maladaptive perfectionism in medical students: a longitudinal investigation. *Medical education*. 2001;35(11):1034-1042. Epub 2001/11/13.
35. Cox BJ, Enns MW, Clara IP. The multidimensional structure of perfectionism in clinically distressed and college student samples. *Psychological Assessment* 2002;14(3):365-73. Epub 2002/09/07.
36. Rice KG, Slaney RB. Clusters of perfectionists: Two studies of emotional adjustment and academic achievement. *Measurement and Evaluation in Counseling and Development* 2002;35(1):35-48.
37. Grzegorek JL, Slaney RB, Franze S, et al. Self-Criticism, Dependency, Self-Esteem, and Grade Point Average Satisfaction Among Clusters of Perfectionists and Nonperfectionists. *Journal of Counseling Psychology* 2004;51(2):192-200.
38. Bieling PJ, Israeli AL, Smith J, et al. Making the grade: The behavioural consequences of perfectionism in the classroom. *Personality and individual differences*. 2003;35(1):163-178.
39. Flett GL, Sawatzky DL, Hewitt PL. Dimensions of perfectionism and goal commitment: A further comparison of two perfectionism measures. *Journal of Psychopathology and Behavioral Assessment*. 1995;17(2):111-124.
40. Accordino DB, Accordino MP, Slaney RB. An investigation of perfectionism, mental health, achievement, and achievement motivation in adolescents. *Psychology in the Schools*. 2000;37(6):535-45.
41. Blankstein KR, Dunkley DM. Evaluative concerns, self-critical, and personal standards perfectionism: A structural equation modeling strategy. In Flett, GL & Hewitt, PL (Eds), *Perfectionism: Theory, research and treatment* (pp 285-315) Washington, DC: American Psychological Association. 2002.

42. Papadakis MA, Hodgson CS, Teherani A, et al. Unprofessional behavior in medical school is associated with subsequent disciplinary action by a state medical board. *Academic medicine : journal of the Association of American Medical Colleges*. 2004;79(3):244-249. Epub 2004/02/27.
43. Murden RA, Way DP, Hudson A, et al. Professionalism deficiencies in a first-quarter doctor-patient relationship course predict poor clinical performance in medical school. *Academic medicine : journal of the Association of American Medical Colleges* 2004;79(10 Suppl):S46-48. Epub 2004/09/24.
44. Hammer D, Mason HL, Chalmers RK, et al. Development and Testing of an Instrument to Assess Behavioral Professionalism of Pharmacy Students. *American journal of pharmaceutical education*. 2000;64(2):141-151.
45. Masella RS. Internal dental school environmental factors promoting faculty survival and success. *Journal of dental education*. 2005;69(4):440-445. Epub 2005/04/01.
46. Hayward L, Arthur N. Perfectionism and Post-Secondary Students. *Canadian Journal of Counselling and Psychotherapy/Revue canadienne de counseling et de psychothérapie*. 1998;32(2):187-199.
47. Flett GL, Besser A, Hewitt PL, et al. Perfectionism, silencing the self, and depression. *Personality and individual differences*. 2007;43(5):1211-1222.
48. Soleymani B, Rekabdar G. The Relationship between Perfectionism Dimensions and Mathematics Performance in Iranian Students. *Procedia - Social and Behavioral Sciences*. 2010;8:453-457.
49. Ghorbandordinejad F. Examining the Relationship Between Students' Levels of Perfectionism and Their Achievements in English Learning. *IJRELT* 2014;2(2):36-45.
50. Stoeber J, Haskew A, Scott C. Perfectionism and exam performance: The mediating effect of task-approach goals. *Personality and individual differences*. 2015;74:171-176.
51. Hammer DP, Berger BA, Beardsley RS, et al. Student Professionalism. *American journal of pharmaceutical education*. 2003;67(3):1-29.
52. Barondess JA. Medicine and professionalism. *Archives of internal medicine*. 2003;163(2):145-149. Epub 2003/01/28.
53. Campbell EG, Regan S, Gruen RL, et al. Professionalism in medicine: results of a national survey of physicians. *Annals of Internal Medicine* 2007;147(11):795-802. Epub 2007/12/07.
54. Poirier TI, Gupchup GV. Assessment of pharmacy student professionalism across a curriculum. *American Journal of Pharmaceutical Education* 2010;74(4):62. Epub 2010/06/30.
55. Bradford D, Watmore P, Hammer D, et al. The relationship between self-reported professionalism and student involvement in pharmacy organizations at one college of pharmacy: an exploratory analysis. *Currents in Pharmacy Teaching and Learning* 2011;3(4):283-9.
56. Campbell JD, Di Paula A. Perfectionistic self-beliefs: Their relation to personality and goal pursuit. In G. L. Flett & P. L. Hewitt (Eds.), *Perfectionism: Theory, research, and treatment*. Washington, DC: American Psychological Association. 2002:181-198.
57. Henning K, Ey S, Shaw D. Perfectionism, the imposter phenomenon and psychological adjustment in medical, dental, nursing and pharmacy students. *Medical Education*. 1998;32(5):456-464. Epub 1999/04/22.
58. Flett GL, Hewitt PL. *Perfectionism: Theory, research, and treatment*. Washington, DC: American Psychological Association. 2002.
59. Rice KG, Ashby JS. An efficient method for classifying perfectionists. *Journal of Counseling Psychology* 2007;54(1):72 -85.
60. Rice KG, Dellwo JP. Perfectionism and Self-Development: Implications for College Adjustment. *Journal of Counseling and Development* 2002;80(2):188-196.
61. Pishghadam R, Akhondpoor F. Learner Perfectionism and its Role in Foreign Language Learning Success, Academic Achievement, and Learner Anxiety. *Journal of Language Teaching and Research*. 2011;2(2):432-440.
62. Roohafza H, Afshar H, Sadeghi M, et al. The Relationship between Perfectionism and Academic Achievement, Depression and Anxiety. *Iranian Journal of Psychiatry and Behavioral Sciences*. 2010;4(2):31-36.
63. Conroy DE. Representational models associated with fear of failure in adolescents and young adults. *Journal of personality*. 2003;71(5):757-783. Epub 2003/08/23.
64. Snider KT, Johnson JC. Professionalism score and academic performance in osteopathic medical students. *The Journal of the American Osteopathic Association*. 2014;114(11):850-859. Epub 2014/10/30.
65. Cruess RL, Cruess SR. Teaching professionalism: general principles. *Medical Teacher* 2006;28(3):205-208. Epub 2006/06/07.