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Predicting Fatigue in University Students via Subtypes of Perfectionism

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This study aims to predict the feelings of cognitive, social, and physical fatigue in university students via adaptive and maladaptive subtypes of perfectionism. This descriptive study follows a correlational design. It had a statistical population constituting of an all-male and all–female undergraduates (in the final year, studying in the 7th and 8th semesters) and graduate students in the Faculty of Social Sciences at the Razi University of Kermanshah in the academic year 2016–2017. A sample of 269 students was selected by using the stratified random-sampling method. To collect data, the Fatigue Impact Scale (Fisk et al., 1994) and the Positive and Negative Perfectionism Scales (Terry-Short et al., 1995) were used. Data was analyzed by using several statistical methods, including a Pearson correlation coefficient, a stepwise regression analysis, an independent t-test, and a one-sample t-test. The results of this study indicate that feelings of cognitive, social, and physical fatigue are significantly and diversely related to adaptive perfectionism and maladaptive perfectionism ($p< .01$), respectively. Moreover, results revealed that the mean of perfectionism in female students was higher than that of male students. This difference was statistically significant. However, considering the feelings of cognitive, social, and physical fatigue, no significant differences were found between the male and female students.

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Fatigue is a universal experience. However, the way a person experiences fatigue can be unique (Ranjith, 2005). Fatigue can be accelerated by numerous factors. People expect fatigue to be terminated by sleeping or getting some rest. When fatigue is persistent or unexplainable, it raises concern. Fatigue is a common symptom of a number of chronic diseases, such as HIV/AIDS, multiple sclerosis, rheumatoid arthritis, chronic fatigue syndrome, advanced stages of liver diseases, heart diseases, and chronic lung diseases (Cohen, Powderly & Opal, 2017). Fatigue is one of the most prevalent issues mentioned to healthcare providers (Pizzorno, Murray & Joiner-Bey, 2016). However, in up to 30% cases referred to doctors, no specific causes can be diagnosed and patients have no evident signs of fatigue (Joyce & Lasseter, 2009).

In the key components which should be considered in the field of education is a feeling of fatigue. In psychology, fatigue is known as one of the most significant and prevalent issues. Many of those who refer to psychologists and psychiatrists complain of having a feeling of fatigue; however, most of them use other, traditional concepts to express it (Ramezani, Moosavi, Salehi & Hosseinkhanzadeh, 2016). Krupp (2003) stated that the term *fatigue* is both highly meaningful and inaccurate, and defined it as a feeling of weariness—rather than normal tiredness—which is immeasurable (Motaharinejad, Parvane & Ghahari, 2016).

Students may experience problems such as fatigue due to the nature of current academic and social situations. Fatigue is a multi-dimensional feeling with different definitions: a physical dimension (lack of energy and the need to rest); a cognitive or

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psychological dimension (in breach of mindfulness and attention); and an emotional dimension (loss of motivation or interest) (Bababpour Kheirodin, Esmaeelpour & Saeedi Dehghani, 2015). Fatigue affects all aspects of one's life and reduces a person's physical, social, and psychological performance (Soroush & Hafezi, 2016). Thus, because of the multi-dimensionality of fatigue, especially in psychological and mental dimensions, a significant subject of interest in recent years has been to conduct studies aimed at examining the relationship of chronic fatigue with psychiatric diseases, cognitive processes, and personal traits (Rastegar, Zare, Sarmadi & Hosseni, 2013).

Perfectionism can be regarded as one of the predictors of fatigue. Since the early twentieth century, perfectionism has been of interest in psychology. Researchers consider perfectionism to be a wide network of knowledge, including expectations, interpretations of various events, and self-evaluations. They explain this term in detail and define perfectionists as people who have very high standards, who regularly and obsessively try to reach impossible goals, and evaluate themselves based on profitability and completeness (Sadeghi & Fadavi Asghari, 2015). Perfectionism, in general, is considered to have several key characteristics (Samuel, 2014), such as high standards (Aldea & Rice, 2006; Rice & Ashby, 2007), self-criticism (Grzegorek Slaney, Franze & Rice, 2004), and a need for order (Rice & Dellwo, 2002). However, current research suggests that perfectionism is a multi-dimensional construct consisting of both positive and negative qualities. Pioneers, who for the first time worked on perfectionism, define it as having an extreme tendency to be perfect, assuming the slightest mistake as an unforgivable sin, and anxiously waiting for the consequences of a failure. Simply put, perfectionists set very high standards for considering

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themselves as successful: if they do not reach their ambitious goals, they think of themselves as a failure. They know the world by the law of all or nothing. Any result may be a complete success or failure (Imami, 2003).

Recent studies on perfectionism considered it to be a multi-dimensional structure, including adaptive perfectionism and maladaptive perfectionism (Flett, Besser, Hewitt & Davis, 2007). The key difference between adaptive and maladaptive subtypes of perfectionism is that perfectionists' tendencies continue to exist in maladaptive perfectionism despite evidence which suggests that considered standards are unrealistic. Furthermore, the other difference is that adaptive perfectionists try their best to achieve their considered standards but they do not lose their self-esteem (Lowell & Limk, 2009). Hamachek (1978) distinguished normal (positive) perfectionism from neurotic (negative) perfectionism. He believed that the former contains rational and realistic expectations based on one's capabilities and limitations and is accompanied with efforts and attempts to reach those expectations: it eventually leads to a sense of satisfaction and an increase in self-esteem. However, abnormal and unhealthy perfectionism occurs when a person tries to reach his/her extreme and unrealistic criteria and strictly evaluates his/her performance. Unhealthy perfectionists are prompted by fear of failure and they cannot be satisfied when a mistake occurs (Hosseini, Grampour & Sharifi Daramadi, 2016).

Perrucci et al. (2007) investigated factors affecting the work and family life of shift workers. The results of their study revealed that there were significant differences between shift workers and non-shift workers with regard to quality of life, family functioning, and chronic fatigue. Van Hook and Rothenberg (2008) examined the quality of life, chronic fatigue, life

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satisfaction, and burnout in child welfare workers. The results of their study, premised on a sample size of 182 individuals, showed that female workers, in comparison with their male counterparts, had a higher level of chronic fatigue and lower levels of quality of life and life satisfaction. Moreover, quality of life and life satisfaction were significantly and diversely related to chronic fatigue and burnout. In another study, Sharpe and Wilks (2002) mentioned fatigue as one of the most important and prevalent issues in psychology.

Many people who refer to psychologists and psychiatrists complain about fatigue; however, they usually apply traditional concepts to express it. Several studies have evaluated fatigue using various terms like depression, indifference, and helplessness. Although there are common elements in these concepts, fatigue has some specific features that need to be addressed independently. Deary and Chalder (2008) examined personality and perfectionism in the chronic fatigue syndrome. They confirmed the relationship between neuroticism and fatigue, revealed a correlation between maladaptive perfectionism and fatigue, and concluded that a healthy feature—like adaptive perfectionism—when coupled with evaluative concerns cannot be necessarily healthy in a fatigue population. Therefore, researchers and clinicians should note the context in which apparently benign traits are expressed and how they interact with other traits.

Zhang, Gan & Cham (2014) investigated the relationship of perfectionism (adaptive and maladaptive) with academic burnout and engagement in Chinese college students. They concluded that while maladaptive perfectionism was directly related to academic burnout and was diversely related to academic performance,

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adaptive perfectionism was diversely related to academic burnout and was directly related to academic performance.

In another study, Babapour Kheirodin et al. (2015) assessed the role of perfectionism in predicting feelings of cognitive, social, and physical fatigue. They concluded that adaptive and maladaptive subtypes of perfectionism were significant predictors of general fatigue and feelings of cognitive, social, and physical fatigue. They predicted about 29% to 39% variance in the dimensions of fatigue and general fatigue. According to the results of this study, focusing on the role of personality traits, including perfectionism, in the treatment of patients with chronic fatigue syndrome can play an important part in these patients' treatment.

Therefore, given the discussed theoretical and practical background and taking the significance of fatigue and factors affecting it into account, this study aims to predict feelings of cognitive, social, and physical fatigue among university students via adaptive and maladaptive subtypes of perfectionism. In the light of this goal, the following hypotheses were examined:

1- There is a relationship between university students' feeling of fatigue and perfectionism.

2- Subscale of university students' perfectionism can predict the feeling of fatigue.

3- The degree of university students' feeling of fatigue is higher than the average.

4- The degree of university students' perfectionism is higher than the average.

5- There is a difference between female and male university students in feeling fatigue.

6- There is a difference between female and male university students in perfectionism.

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Method

This descriptive study followed a correlational design. According to the results of previous studies (Babapour Kheirodin et al, 2015), the feeling of fatigue increases with increase in levels of academic education. The present study had a statistical population consisting of all male and female undergraduate (in the final year, studying in the 7th and 8th semesters) and graduate students in the Faculty of Social Sciences at the Razi University of Kermanshah in the academic year 2016–2017. Using the Morgan's Table (1970) and a stratified random sampling method, a sample of 269 individuals was selected. Sampling was based on gender. Since the proportion of male-to-female students in the statistical society was 39% to 61%, this proportion was also observed in sample selection (106 males and 163 female). The adequacy of the sample size was also examined (KMO = .785, Sig = .0001).

Instruments

To collect the required data, the following measurement tools were applied:

Fatigue Impact Scale (FIS)

This 40-item self-report scale, which was developed by Fisk et al. (1994), examines a subject's functional limitations caused due to fatigue experienced within the previous month. This scale evaluates the impact of fatigue on cognitive functioning (10 items), physical functioning (10 items), and social functioning (20 items). To assess the severity of fatigue, items are scored based on a five-point Likert-type scale ranging from 0 (no problem) to 4 (severe problem). The total score of this scale is obtained from the sum of the scores for the three subscales: the maximum score is 160. Obtaining high scores on the FIS indicates

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severity of fatigue. Internal consistency of this scale, examined using a Cronbach's alpha coefficient, was .98; Cronbach's alpha coefficients of the three subscales were all greater than .87 (Fisk et al., 1994). In the current study, the Cronbach's alpha coefficient of the entire scale was .95.

Positive and Negative Perfectionism (PNP) Scale

This scale was designed by Terry-Short, Owens, Slade & Dewey (1995) to measure various levels of positive and negative perfectionism. This 40-item scale includes 20 items that evaluate positive perfectionism and 20 items that assess negative perfectionism. The items are scored based on a five-point Likert-type scale. In their study, using a Cronbach's alpha coefficient, Haase and Prapavessis (2003) examined the reliability of the entire scale, positive perfectionism, and negative perfectionism: they reported that reliability was .87, .83, and .81, respectively. Furthermore, Burns and Fedewa (2005) reported that Cronbach's alpha coefficients of positive perfectionism and negative perfectionism were .85 and .86 respectively. In an Iranian sample, correlation coefficients in the scores of 90 subjects were assessed twice within a four-week interval. Correlation coefficients obtained for the entire scale, female subjects, and male subjects were .86, .84, and .87 respectively. These correlations indicate that the scale is reliable (Khosravi & Alizadeh Sahraee, 2009). In the present study, using the Cronbach's alpha coefficient, the reliability of this scale was .88.

Obtained data were analyzed by applying several statistical methods, including the Pearson correlation coefficient, a stepwise regression analysis, an independent t-test, and a one-sample t-test.

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Results

To assess the relationships between feelings of cognitive, social, and physical fatigue with adaptive and maladaptive subtypes of perfectionism, the Pearson correlation coefficient was used. Results obtained from its correlation matrix are presented in Table 1.

Table 1

The Correlation Matrix of the Subtypes of Perfectionism with Feelings of Cognitive, Social, and Physical Fatigue

Variables	1	2	3	4	5	6
Adaptive perfectionism	1					
Maladaptive perfectionism	-.09	1				
Cognitive fatigue	-.341**	.707**	1			
Social fatigue	-.325**	.675**	.929**	1		
Physical fatigue	-.330**	.711**	.883**	.905**	1	
Fatigue (general)	-.341**	.721**	.963**	.986**	.952**	1

** $p < .01$

The results presented in Table 1 demonstrate that there are significant and diverse correlations between adaptive perfectionism and cognitive fatigue, with the correlation coefficient being –.341; between adaptive perfectionism and social fatigue, with the correlation coefficient being –.325; and adaptive perfectionism and physical fatigue, with the correlation coefficient being –.330. These correlations are significant at 99% confidence level ($p < .01$). Therefore, it can be concluded that adaptive perfectionism is significantly and diversely correlated

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with feelings of cognitive, social, and physical fatigue in university students.

Furthermore, the results show that there are significant and direct correlations between maladaptive perfectionism and cognitive fatigue, with the correlation coefficient being .707; between maladaptive perfectionism and social fatigue, with the correlation coefficient being .675; and maladaptive perfectionism and physical fatigue, with the correlation coefficient being .711. These correlations are significant at the 99% confidence level ($p< .01$). Therefore, it can be concluded that maladaptive perfectionism is significantly and directly correlated with feelings of cognitive, social, and physical fatigue in university students.

To evaluate this question, i.e. which subtype of perfectionism can predict feelings of cognitive, social, and physical fatigue, stepwise regression analysis was used by gender. These results are presented in Tables 2 & 13.

Table 2

Results of Stepwise Regression Analysis Conducted to Predict Feelings of Fatigue via Subtypes of Perfectionism in Total Sample

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.658	.434	.431	202.020	.658	14.213	1.000	.0001
2	Maladaptive perfectionism	.692	.479	.475	121.034	.618	13.650	1.036	.0001
	Adaptive perfectionism					-.218	-4.808	1.036	.0001

The results presented in Table 2 indicate that, in the first step, maladaptive perfectionism with an adjusted R-squared of .431 is

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able to predict 43% of the variance in feelings of fatigue in university students. The standard beta coefficient shows that the beta coefficient of maladaptive perfectionism is .658. Adaptive perfectionism enters into the equation in the second step. With a 4% increase and an adjusted R-squared of .475, this variable is able to predict 47% of the variance in feelings of fatigue in university students. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

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Table 3

of stepwise Regression Analysis Conducted to Predict Feelings of Cognitive Fatigue via Subtypes of Perfectionism in Total Sample

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.666	.444	.442	211.750	.666	14.552	1.000	.0001
2	Maladaptive perfectionism	.701	.491	.487	127.418	.626	14.030	1.034	.0001
	Adaptive perfectionism					-.221	-4.939	1.034	.0001

The results presented in Table 3 indicate that, in the first step, maladaptive perfectionism with an adjusted R-squared of .442 is able to predict 44% of the variance in feelings of cognitive fatigue in university students. The standard beta coefficient shows that the beta coefficient of maladaptive perfectionism is .666. Adaptive perfectionism enters into the equation in the second step. With a 4% increase and an adjusted R-squared of .487,

this variable is able to predict 48% of the variance in feelings of fatigue among university students. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

Table 4

Results of Stepwise Regression Analysis Conducted to Predict Feelings of Social Fatigue via Subtypes of Perfectionism in Total Sample

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.478	.229	.226	78.342	.478	8.851	1.000	.0001
2	Maladaptive perfectionism	.495	.245	.239	42.647	.454	8.335	1.036	.0001
	Adaptive perfectionism					-.129	-2.364	1.036	.019

The results presented in Table 4 indicate that, in the first step, maladaptive perfectionism with an adjusted R-squared of .226 is able to predict 22% of the variance in feelings of social fatigue in university students. The standard beta coefficient shows that the beta coefficient of maladaptive perfectionism is .478. Adaptive perfectionism enters into the equation in the second step. With a 2% increase and an adjusted R-squared of .239,

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this variable is able to predict 24% of the variance in feelings of social fatigue among university students. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

Table 5

Results of Stepwise Regression Analysis Conducted to Predict Feelings of Physical Fatigue via Subtypes of Perfectionism in Total Sample

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.635	.403	.401	178.852	.635	13.374	1.000	.0001
2	Maladaptive perfectionism	.674	.454	.450	109.639	.593	12.822	1.034	.0001
	Adaptive perfectionism					-.229	-4.954	1.034	.0001

The results presented in Table 5 indicate that, in the first step, maladaptive perfectionism with an adjusted R-squared of .401 is able to predict 40% of the variance in feelings of physical fatigue in university students. The

standard beta coefficient shows that the beta coefficient of maladaptive perfectionism is .635. Adaptive perfectionism enters into the equation in the second step. With a 5% increase and an adjusted R-squared of .450, this variable is able to predict 45% of the variance in feelings of physical fatigue among university students. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

Table 6

Results of Stepwise Regression Analysis Conducted to Predict Feelings of Fatigue via Subtypes of Perfectionism in Females

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.668	.447	.443	130.028	.668	11.403	1.000	.0001
2	Maladaptive perfectionism	.693	.480	.474	73.958	.636	10.999	1.031	.0001
	Adaptive perfectionism					-0.186	-3.216	1.031	0.0001

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The results presented in Table 6 indicate that, in the first step, maladaptive perfectionism with an adjusted R-squared of .443 is able to predict 44% of the variance in feelings of fatigue in females. The standard beta coefficient shows that the beta coefficient of maladaptive perfectionism is .668. Adaptive perfectionism enters into the equation in the second step. With a 3% increase and an adjusted R-squared of .474, this variable is able to predict 47% of the variance in feelings of fatigue among females. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

Table 7

Results of Stepwise Regression Analysis Conducted to Predict Feelings of Cognitive Fatigue via Subtypes of Perfectionism in Females

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.690	.476	.473	146.190	.690	12.091	1.000	.0001
2	Maladaptive perfectionism	.727	.529	.523	89.842	.650	11.791	1.031	.0001
	Adaptive perfectionism					-.234	-4.246	1.031	.0001

The results presented in Table 7 indicate that, in the first step, maladaptive perfectionism with an adjusted R-squared of .473 is able to predict 47% of the variance in feelings of cognitive fatigue in females. The standard beta coefficient shows that the beta coefficient of maladaptive perfectionism is .690. Adaptive perfectionism enters into the equation in the second step. With a 5% increase and an adjusted R-squared of .523, this variable is able to predict 52% of the variance in feelings of fatigue among females. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

Table 8

Results of Stepwise Regression Analysis Conducted to Predict Feelings of Social Fatigue via Subtypes of Perfectionism in Females

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.453	.205	.200	41.524	.453	6.44	1.000	.0001

The results presented in Table 8 indicate that, only maladaptive perfectionism with an adjusted R-squared of .200 is able to predict 20% of the variance in feelings of social fatigue in females. The standard beta coefficient shows that the beta coefficient of maladaptive perfectionism is .453. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

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Table 9

Results of Stepwise Regression Analysis Conducted to Predict Feelings of Physical Fatigue via Subtypes of Perfectionism in Females

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.693	.480	.477	148.624	.693	12.191	1.000	.0001
2	Maladaptive perfectionism	.722	.521	.515	87.155	.657	11.836	1.031	.0001
	Adaptive perfectionism					-.207	-3.720	1.031	.0001

The results presented in Table 9 indicate that, in the first step, maladaptive perfectionism with an adjusted R-squared of .477 is able to predict 47% of the variance in feelings of physical fatigue in females. The standard beta coefficient shows that the beta coefficient of maladaptive perfectionism is .693. Adaptive perfectionism enters into the equation in the second step. With a 4% increase and an adjusted R-squared of .515, this variable is able to

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predict 51% of the variance in feelings of physical fatigue among females. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

Table 10

Results of Stepwise Regression Analysis Conducted to Predict Feelings of Fatigue via Subtypes of Perfectionism in Males

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.676	.457	.451	86.560	.676	9.304	1.00	.0001
2	Maladaptive perfectionism	.714	.510	.501	53.140	.612	8.510	1.076	.0001
	Adaptive perfectionism					-.240	-3.342	1.076	.001

The results presented in Table 10 indicate that, in the first step, maladaptive perfectionism with an adjusted R-squared of .451 is able to predict 45% of the variance in feelings of fatigue in males. The standard beta coefficient shows that the beta coefficient of maladaptive perfectionism is .676. Adaptive perfectionism enters into the

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equation in the second step. With a 5% increase and an adjusted R-squared of .501, this variable is able to predict 50% of the variance in feelings of fatigue among males. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

Table 11

Results of Stepwise Regression Analysis Conducted to Predict Feelings of Cognitive Fatigue via Subtypes of Perfectionism in Males

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.658	.433	.428	79.510	.658	8.917	1.000	.0001
2	Maladaptive perfectionism	.679	.461	.450	43.974	.615	8.223	1.068	.0001
	Adaptive perfectionism					-.171	-2.284	1.068	.024

The results presented in Table 11 indicate that, in the first step, maladaptive perfectionism with an adjusted R-squared of .428 is able to predict 42% of the variance in feelings of cognitive fatigue in males. The standard beta

coefficient shows that the beta coefficient of maladaptive perfectionism is .658. Adaptive perfectionism enters into the equation in the second step. With a 3% increase and an adjusted R-squared of .450, this variable is able to predict 45% of the variance in feelings of cognitive fatigue among males. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

Table 12

Results of Stepwise Regression Analysis Conducted to Predict Feelings of Social Fatigue via Subtypes of Perfectionism in Males

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.631	.398	.392	68.052	.631	8.249	1.000	.0001
2	Maladaptive perfectionism	.668	.446	.435	41.057	.570	7.457	1.076	.0001
	Adaptive perfectionism					-.228	-2.977	1.076	.004

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The results presented in Table 12 indicate that, in the first step, maladaptive perfectionism with an adjusted R-squared of .392 is able to predict 39% of the variance in feelings of social fatigue in males. The standard beta coefficient shows that the beta coefficient of maladaptive perfectionism is .631. Adaptive perfectionism enters into the equation in the second step. With a 4% increase and an adjusted R-squared of .435, this variable is able to predict 43% of the variance in feelings of social fatigue among males. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

Table 13

Results of Stepwise Regression Analysis Conducted to Predict Feelings of Physical Fatigue via Subtypes of Perfectionism in Males

Step	Variable	R	R^2	Adj R^2	F	B	T	VIF	Sig
1	Maladaptive perfectionism	.581	.337	.331	52.934	.581	7.276	1.000	.0001
2	Maladaptive perfectionism	.613	.376	.364	30.994	.530	6.581	1.068	.0001
	Adaptive perfectionism					-.203	-2.517	1.068	.013

The results presented Table 13 indicate that, in the first step, maladaptive perfectionism with an adjusted R-squared of .331 is able to predict 33% of the variance in feelings of physical fatigue in males. The standard beta coefficient shows that the beta coefficient of maladaptive perfectionism is .581. Adaptive perfectionism enters into the equation in the second step. With a 3% increase and an adjusted R-squared of .364, this variable is able to predict 36% of the variance in feelings of physical fatigue among males. The magnitude of the variance inflation factor (VIF) also indicates that there is no linear relationship between the variables.

In order to investigate the difference between Female and male students in terms of research variables, the assumption of the normalization of data was studied using the Kolmogorov–Smirnov test. Results of this are presented in Table 14.

Table 14

Results of the Kolmogorov–Smirnov Test

Variables	N	M	SD	Sig
Perfectionism	269	3.50	.405	.052*
Fatigue	269	3.09	1.01	.069*

*$p > .05$

The results of this test presented in Table 14 indicate that the variables of this study have a normal distribution.

To examine differences between male and female students in perfectionism and fatigue, the independent t-test was used. Results of this are presented in Table 15.

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Table 15

Results of the Independent T-Test Conducted to Examine Differences between Male and Female Students in Perfectionism and Fatigue

Variables	Gender	N	M	SD	T	Df	Sig
Perfectionism	Male	106	3.37	.36	4.14	267	.001
	Female	163	3.56	.38			
Fatigue	Male	106	3.14	.81	1.45	267	.15
	Female	163	2.98	.93			

The results presented in the above table (Table 15) reveal that male students' perfectionism mean is 3.37, with a standard deviation of .36, and female students' perfectionism mean is 3.56, with a standard deviation of .38. Additionally, the results demonstrate that the calculated t-statistic (4.14) with a degree of freedom of 267 is significant at 99% confidence level ($p < .01$). Therefore, it can be stated that there is a significant difference between male and female students with regard to perfectionism, and that female students' perfectionism mean is higher than that of the male students.

Considering fatigue among university students, male students' mean is 3.14, with a standard deviation of .81; female students' mean is 2.98, with the standard deviation of .93. In addition, the results show that the calculated t-statistic (1.45) with a degree of freedom of 267 is not significant at the 95% confidence level ($p > .05$). Accordingly, it can be concluded that there are no significant differences between male and female students with regard to feelings of cognitive, social, and physical fatigue.

To investigate levels of adaptive and maladaptive perfectionism and cognitive, social, and physical fatigue among

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university students, the one-sample t-test was undertaken. Its results are presented in Table 16.

Table 16

Results of the One-Sample T-test Conducted to Examine Statuses of Perfectionism and Fatigue among University Students

Variable	N	M	SD	Test value	T	Df	Sig
Adaptive perfectionism	269	3.49	.39	3	2.53	268	.001
Maladaptive perfectionism	269	3.33	.37	3	2.49	268	.001
Cognitive fatigue	269	2.99	.92	3	-.151	268	.88
Social fatigue	269	3.05	.89	3	1.08	268	.28
Physical fatigue	269	3.07	.96	3	1.30	268	.19
General fatigue	269	3.05	.89	3	.856	268	.39

As presented in Table 16, adaptive perfectionism with a mean of 3.49 and a standard deviation of .39 is greater than the test value (3). This difference from the calculated t-statistic of 2.53 and the degree of freedom of 268 is significant at a 99% confidence level (p <.001). Since the mean of adaptive perfectionism (3.49) is greater than the test value (3), it can be concluded that the status of adaptive perfectionism is at a relatively high level.

Maladaptive perfectionism with a mean of 3.33 and a standard deviation of .37 is greater than the test value (3). This difference from the calculated t-statistic of 2.49 and the degree of freedom of 268 is significant at 99% confidence level (p <.001). Since the mean of maladaptive perfectionism (3.33) is greater than the test value (3), it can be concluded that the status of maladaptive perfectionism is at a relatively high level.

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Moreover, the results of Table 16 indicate that general fatigue with a mean of 3.05 and a standard deviation of .89 is equal to the test value (3). This difference from the calculated t-statistic of .856 and the degree of freedom of 268 is not significant at 95% confidence level (p >.05). Since the mean of general fatigue (3.05) is greater than the test value (3), it can be concluded that the status of general fatigue is at a moderate level.

As presented in Table 16, cognitive fatigue with a mean of 2.99 and a standard deviation of .92 is equal to the test value (3). This difference from the calculated t-statistic of –.151 and the degree of freedom of 268 is not significant at 95% confidence level (p > .05). Since the mean of cognitive fatigue (2.99) is equal to the test value (3), it can be concluded that the status of cognitive fatigue is at a moderate level.

Additionally, the results of Table 16 reveal that social fatigue with a mean of 3.05 and a standard deviation of .89 is equal to the test value (3). This difference from the calculated t-statistic of 1.08 and the degree of freedom of 268 is not significant at 95% confidence level (p >.05). Since the mean of social fatigue (3.05) is equal to the test value (3), it can be concluded that the status of social fatigue is at a moderate level.

The results presented in Table 16 show that physical fatigue with a mean of 3.07 and a standard deviation of .96 is equal to the test value (3). This difference from the calculated t-statistic of 1.30 and the degree of freedom of 268 is not significant at 95% confidence level (p >.05). Since the mean of physical fatigue (3.07) is equal to the test value (3), it can be concluded that the status of physical fatigue is at a moderate level.

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Discussion

The objective of this study is to predict feelings of cognitive, social, and physical fatigue in the university students with regard to adaptive and maladaptive subtypes of perfectionism. The results of the present study indicated that adaptive perfectionism is significantly and diversely correlated with feelings of cognitive, social, and physical fatigue. This finding is consistent with results of a study carried out by Babapour Kheirodin et al. (2015) to examine the role of perfectionism in predicting feelings of cognitive, social, and physical fatigue. In this study, results demonstrated that adaptive and maladaptive subtypes of perfectionism significantly predicted general fatigue and feelings of cognitive, social, and physical fatigue.

In explaining this finding, perfectionism means looking at higher and higher goals and trying to achieve them. If done positively and on the basis of reality, this is the basis of pleasurable pleasure for the individual: therefore, the tiredness of trying to achieve it is very limited and insignificant, or not at all, as effort herein is based on the nature and desire of the individual. This will not result in fatigue.

Moreover, the results of the current study show that maladaptive perfectionism is significantly and positively correlated with feelings of cognitive, social, and physical fatigue. In this regard, given the great correlation between maladaptive perfectionism and physical fatigue and the low correlation between maladaptive perfectionism and social fatigue, it can be stated that maladaptive perfectionism has a great impact on physical fatigue and a low impact on social fatigue.

These findings are in line with results obtained from a study conducted by Zhang et al. (2014). This aimed at investigating the relationship of perfectionism (adaptive and maladaptive) with

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academic burnout and engagement in Chinese college students. In this study, the authors concluded that while maladaptive perfectionism is directly related to academic burnout and diversely correlated with academic performance, adaptive perfectionism is diversely related to academic burnout and directly correlated with academic performance. Therefore, it can be stated that maladaptive perfectionism is significantly and positively related to various dimensions of cognitive, social, and physical feelings in university students. In fact, perfectionism—having reference to the role played by a person in achieving high goals—has forced many a person to make a major effort to achieve his/her high goals. This causes different kinds of fatigue, both mentally and physically. When physical, it is possible that on the basis of the person's pleasure in reaching the highest goals he has a cover for fatigue and does not find much of this fatigue. But, in general, this causes cognitive, physical, and social fatigue in individuals.

The results of the current study revealed that adaptive and maladaptive perfectionism is able to predict feelings of cognitive, social, and physical fatigue in university students. In this regard, maladaptive perfectionism has the power to predict feelings of cognitive, social, and physical fatigue. This finding is in line with results of a study conducted by Babapour Kherodin et al. (2015), which aimed to examine the role of perfectionism in predicting feelings of cognitive, social, and physical fatigue.

Maladaptive perfectionists believe that they should achieve very high standards; thus, they do not accept any mistakes or failures. However, since most of these standards are unrealistic, they cannot achieve them. The failure in reaching the targeted standards leads to stress, fatigue, depression, and anxiety. This is in line with the statuses of maladaptive perfectionists who cannot

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be satisfied with their arduous efforts even when they succeed. These people usually consider their successes worthless (Flett et al., 2007).

Since adaptive perfectionism is in accordance with an individual's intrusiveness and occurs progressively, it does not cause fatigue. However, maladaptive perfectionism is based on an extremity or a deficiency in which an individual does not make much effort based on his physical and mental condition. It is only an erroneous attempt or competition that causes fatigue in the individual and, thus, maladaptive perfectionism has the potential to lead to fatigue.

Furthermore, the results obtained from this study show that there is a significant difference between male and female university students with regard to perfectionism: female students' perfectionism mean is higher than that of male students. This finding is consistent with results of a study carried out by Van Hook and Rothenberg (2008) to evaluate the quality of life, chronic fatigue, life satisfaction, and burnout in child welfare workers. The results showed that females had a higher score than males at the scale of perfectionism.

In explaining this finding, one can cite females' personality traits. The effort to complete tasks and avoid any mistakes, as well as the exact accomplishment of the things that they are assigned to, will increase the amount of perfectionism in females.

Additionally, the results of the current study indicate that there are no significant differences between male and female university students with regard to feelings of cognitive, social, and physical fatigue. This finding is in line with the results of Babapour Kheirodin et al. (2015), though most of the previously conducted studies confirmed that women obtained higher fatigue scores as compared to men. The relative risk of fatigue in women is 1.3

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times higher than that in men. In predisposing variables in women, factors related to endocrine glands and stress can be mentioned (Ranjith, 2005).

In addition, the obtained results demonstrate that the statuses of adaptive and maladaptive perfectionism and feelings of cognitive, social, and physical fatigue were at moderate levels. This finding is in line with the results obtained by Sharpe and Wilks (2002). Considering that most students are young, are at a critical stage of their life, and face different situations and conditions in the university environment, they tend to be on the verge of perfectionism. This is why they feel fatigue at moderate levels.

Based on the findings of this research, it can be assumed that increase in adaptive perfectionism can decrease feelings of cognitive, social, and physical fatigue in university students and vice versa. This is due to the fact that adaptive perfectionism affects students' feelings and weakens a number of negative feelings. Perfectionist personality tendencies formed in a person expand into social relations and affect the person's behavior and performance. Hence, this variable should be considered in the prevention and treatment of people with chronic fatigue. This finding is in line with the results obtained by Deary and Chalder (2008). To explain these results, it can be noted that normal perfectionism, which is healthy and adaptive/positive, encompasses several aspects of perfectionism that are associated with perfectionistic efforts, such as having high personal standards and setting precise criteria for performing at one's peak and striving toward excellence.

Moreover, adaptive perfectionists enjoy working hard; thus, they fight for academic success in a flexible manner, accept their personal and situational limitations, and set challenging yet

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reasonable goals for themselves. While positive perfectionism impels students to set precise criteria for performing at their peak and achieving their perfectionistic goals, it decreases their concerns about failure in achieving the considered criteria due to its normal and adaptive features. Several factors are effective in aggravating fatigue and maladaptive perfectionism. In these factors, getting older, lack of adequate rest, depression, stress, and anxiety can be mentioned.

According to the results of the current study and given the destructive effects of maladaptive perfectionism and the feeling of fatigue on young adults, the Ministry of Science, Research, and Technology is recommended to assess the educational environment of our universities and to impart management skills to students to improve their quality of life, promote their general health, and prevent the harmful effects of maladaptive perfectionism. Opening student counseling centers has also been suggested to improve the level of awareness of students toward their own perfectionism as well as help them to modify these features. This will provide a good basis for reducing maladaptive perfectionism and the feeling of fatigue it causes in students. With regard to the time and place constraints of this research, the generalization of the results of this research should be applied cautiously with respect to other statistical populations.

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