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Difficulties in Accepting the Past as a Mediator between Perfectionism and Symptoms of Depression among University Students in Yazd

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Abstract

Objective: The Existential Model of Perfectionism and Depressive Symptoms (EMPDS) assumes that difficulties in accepting the past explains why socially prescribed perfectionism (SPP) is linked to depressive symptoms. Prior research on EMPDS relies on homogeneous samples and cross-sectional designs, limiting our understanding of EMPDS. More importantly, SPP may be affected by different cultural norms, and no study to date has examined this model in Iran. This study aimed to test EMPDS in Iran using a moderated mediation framework, a heterogeneous sample, and a longitudinal design with two waves.

Method: This study used a two-wave longitudinal design in a diverse sample of unmarried undergraduate and graduate Iranian students (N = 251; 117 men and 134 women) studying at universities in Yazd province. We collected the data in February and March 2023. The analysis was moderated mediation analysis. In the first wave, a link to the survey was distributed, which included demographic questions, the SPP scale, and baseline measure of depressive symptoms. One month later, participants who had completed wave 1 were recontacted to complete the Difficulties in Accepting the Past questionnaire and depressive symptoms scale.

Results: SPP predicted depressive symptoms through difficulties in accepting the past (b = 0.64, SE = 0.09, 95% CI = [0.46; 0.83]), and depressive symptoms were also linked to past acceptance (b = 0.35, SE = 0.05, 95% CI = [0.25; 0.45]). A bootstrapping analysis confirmed a significant mediation effect (b = 0.72, 95% CI = [0.27; 2.53]). However, the interaction between SPP and acceptance of the past was not significant (b = -0.007, SE = 0.006, 95% CI = [-0.017; 0.007]).

Conclusion: These findings suggest that psychotherapists treating clients with SPP should consider interventions facilitating meaning-making and acceptance of the past. The study also highlights the importance of accounting for cultural influences when applying EMPDS.

Key words: *Culture; Depression; Mediation Analysis; Personality; Perfectionism*

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Literature has shown that depression is a prevalent mental disorder with characteristics like sadness, anhedonia, guilt, sleep issues, and irritability (1). In addition, this chronic condition has been indicated as a detrimental factor contributing to malfunction in different areas of life, such as educational activities (2), work productivity (3), and family functions (4). Depression is strongly linked to suicidality, substance abuse, and mortality (5-8). Not surprisingly, the costs of depression reach a societal level, and research indicates that an estimated 322 million people are living with depression (6, 9, 10).

Over several decades, research has expanded our knowledge of why depression occurs throughout a lifetime. A substantial body of studies shows that there is an interplay between biological, psychological, and social factors contributing to depressive symptoms (11-15). Despite noticeable progress in understanding the etiology of depression, the complex nature of this mental health disorder remains unclear. Recent evidence indicates a persistent prevalence of depression in the general population, leading to the discovery of a phenomenon termed the treatment-prevalence paradox (TPP) (7). This new finding suggests that further exploration of less identified factors affecting the intensity and prevalence of symptoms related to depression in all people may be necessary.

It has been discussed that the human ability known as the theory of mind enables individuals to reflect on intentions, evaluate experiences, and make meaningful interpretations (16). Even though this ongoing process equips us to communicate with the world and reflect on ourselves, it can be undermined and contribute to cognitive distortions, which result in negative emotions and depression (17-20). Notably, this ability plays a key role in evaluating past experiences, a process that is necessary for consolidation of our past into a personally meaningful frame (21).

However, the evaluation of personal experiences may vary among different people across different cultures, which shows the subjective nature of our judgements about the past. Cultures have been shown to vary in two dimensions, individualism versus collectivism, and tightness versus looseness (22). Individuals from tighter, collectivistic cultures (e.g., East Asian) tend to experience greater pressure to conform to norms rather than to prioritize independent values (22). Therefore, social context can activate a particular mindset and this mindset, in turn, can influence judgements and decisions temporarily (23).

Personal evaluation of experiences may also be affected by personality traits. People who accept their past might experience more self-worth when reflecting on those experiences (21). However, some personality traits may lead to more struggles in accepting the past, which results in depression. Socially prescribed perfectionism (SPP) might be one of those traits (24, 25). SPP represents a perfectionistic reliance on perceived norms and expectations of others. More specifically, others can include family, friends, and society as a whole (26). As different cultures prescribe different norms and values, as well as a variant emphasis on different topics, SPP might display different patterns across cultures.

The Iranian culture has been considered a collectivistic culture with interdependent values. In this type of culture, there is a significant emphasis on group harmony and familial values rather than a more relaxed approach towards individualistic pursuits and values. Success, achievements, and self-worth are evaluated through the lens of others (27).

The present study investigates the impact of SPP as a detrimental personality trait, affecting the evaluation of past experiences in the Iranian culture, employing the existential model of perfectionism and depressive symptoms (EMPDS) as a theoretical framework. The EMPDS posits that people with a strong tendency to conform to perceived external standards in a perfectionistic manner tend to construct their lives in accordance with those standards, leading to susceptibility in their evaluations of past experiences. Consequently, integrating their past experiences into a personally meaningful frame becomes challenging for them. Failure in past acceptance results in an incoherent and purposeless past which contributes to depressive symptoms (24, 25). Past experiences also serve as a valuable resource for individuals to reflect upon and develop a better time perspective. If past experiences are perceived as purposeless, incoherent, or negative, they can contribute to depressive symptoms (28).

Individuals with SPP tend to present themselves as flawless based on their perception of others' demands, needs, and expectations. In fact, these individuals are highly concerned about others' and the society's evaluations, which prevents them from forming personal assessments of themselves and their past. For this reason, among the different dimensions of perfectionism, SPP is strongly linked to non-acceptance of past experiences (24). As a result of this lack of acceptance of the past, depressive symptoms in these individuals tend to both intensify and increase (25).

The more a person is able to successfully evaluate their life and past experiences and create a meaningful framework that they personally value, the more they will achieve psychological coherence and a better sense of well-being (21). However, if we possess traits that hinder us from making meaningful evaluations of our past, we are less likely to succeed in this important task, which can contribute to greater hopelessness. One such trait may be SPP, as mentioned above. If a person scores high in SPP, it means that their evaluation of themselves and their past is more influenced by external standards, society, and others than by their own perspective. As a result, such individuals may be unable to evaluate their past in a personally meaningful way, leading to feelings of hopelessness and depression (24).

Several studies have supported the EMPDS, indicating that people with SPP are at risk of depression due to their struggles in accepting past experiences (24, 25, 29, 30). Nonetheless, certain methodological refinements are needed to reduce the limitations stemming from the dominant focus on cross-sectional designs, the exclusive use of undergraduate and homogenous samples, and a concentration on mediation or moderation rather than integrating them into a moderated mediation model. Furthermore, no research has yet tested EMPDS in the Iranian culture. These limitations have constrained the generalizability of the EMPDS.

Acceptance of the past plays a crucial role in shaping one's self-worth and self-concept. Individuals who are unable to form a meaningful and positive evaluation of their past and come to terms with past events often experience diminished self-worth, which contributes to increased depressive symptoms (21, 24). Despite significant advances in understanding and treating depression as a disease with high personal and societal costs, factors such as acceptance of the past have received limited attention. This oversight is concerning, particularly given evidence that the prevalence of depression continues to rise globally despite these scientific advancements (7).

Notably, no previous study in Iran has examined these constructs or tested this type of perfectionism in relation to symptoms of depression. In addition to having practical implications for designing more effective interventions for depressed and perfectionistic students in the Iranian culture, the findings of this study may help clarify the mechanisms underpinning depression.

By investigating not only the relationships among variables, but also how they influence one another over time, this research contributes to a deeper understanding of depression. All studies to date have used Structural Equation Modeling (SEM) methods to test this model, whereas recent literature has introduced a new analytical approach that differs from SEM in both theoretical foundations and estimation methods. This alternative approach is less susceptible to bias in studies with smaller sample sizes and treats the model as an integrated whole (31).

To our knowledge, this is the first study which employs a different statistical theory for testing EMPDS, and also this study presents the first application of this model in the Iranian culture, paving the way for future studies in similar cultural contexts. Therefore, the present study attempted to address all these limitations by employing a moderated mediation analysis of this model, using a longitudinal design with two phases of assessment and a one-month interval, within a heterogeneous sample including both undergraduate and graduate students in the province of Yazd, Iran.

Given the aforementioned limitations, we aim to extend our understanding of the EMPDS. This will be achieved through the use of a moderated mediation analysis, in which mediation and moderation are incorporated into an integrative model (24, 32, 33). Moreover, using a more diverse sample, including both undergraduate and graduate students, can expand our insights into EMPDS.

We first hypothesize that in a collectivistic cultural context like Iran, where self-worth is heavily influenced by societal expectations, struggles in embracing the past will mediate the relationship between SPP and symptoms of depression over time. Secondly, we hypothesize that SPP will moderate the effect of difficulties in accepting the past, which is the mediator of this model. In other words, we assume that this indirect effect of SPP on depressive symptoms through difficulties accepting the past will be stronger in a collectivistic culture. Figure 1 presents the relationships between the variables in this study.

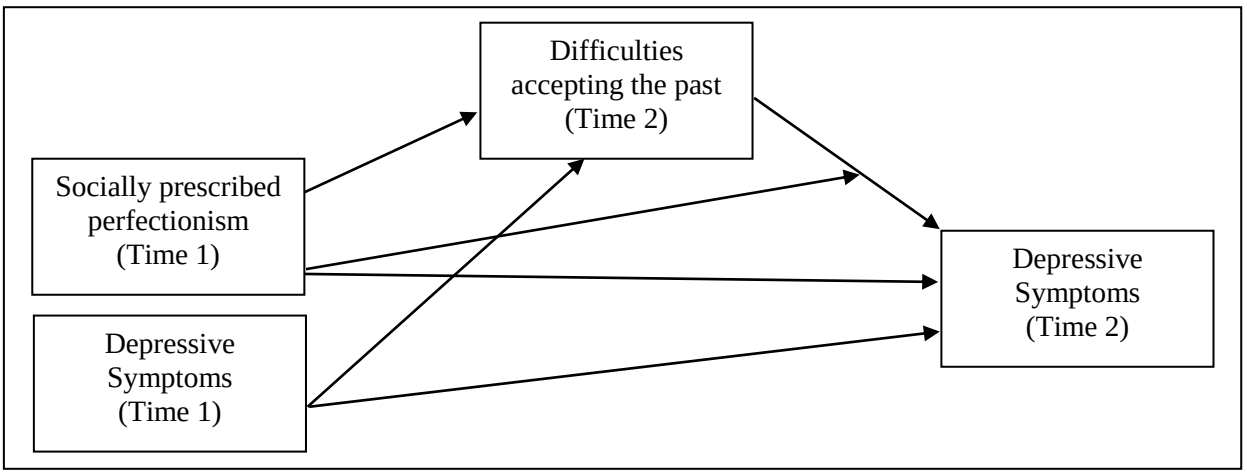

Figure 1. The Conceptual Diagram of the Existential Model of Perfectionism and Depressive Symptoms

Note. This figure illustrates the relationships between variables in EMPDS. Difficulties accepting the past (Time 2) mediates the relationship between SPP (Time 1) and depressive symptoms (Time 2). SPP (Time 1) is both an antecedent and a moderator of the path between difficulties accepting the past and depressive symptoms, which makes the strength of this path conditional on the levels of SPP. The variable of depressive symptoms at baseline (Time 1) operates as a covariate, accounting for its self-propagating effects.

Materials and Methods

Study Design

Our study is fundamental and descriptive-correlational in nature. We applied a longitudinal two-wave design with a one-month interval. According to previous research, this design facilitates a more robust investigation and better captures temporal effects (24). Studies that assess variables at two or more points in time offer several advantages over traditional cross-sectional designs, which only provide a snapshot of relationships at a single time point.

Cross-sectional designs are generally limited to identifying associations or correlations between variables at one point in time, thus offering a limited view of their relationships. In contrast, longitudinal designs with multiple assessments can capture the variability of the relationship between variables over time. This provides a more comprehensive understanding of causal directionality and enhances predictive power (33-35).

In other words, research designs that include multiple phases of assessment can track changes in variables over time, something cross-sectional designs cannot do. Some variables, such as depression and mood, do not remain constant but change across time. For this reason, the underlying assumption of our research design is that individuals with SPP may show varying levels of depression over time, since their acceptance of the past also evolves (36-38).

Participants and Sampling

To recruit our sample, we used a convenience sampling method to enroll a total of 320 students at the baseline in February 2023. We recruited participants using a non-probability sampling approach, combining convenience sampling and voluntary self-selection. A formal power analysis was not conducted. Instead, the target sample size was determined based on commonly accepted rules of thumb for moderated mediation analysis in psychological research, along with practical considerations such as anticipated attrition.

Hayes notes in his book that for moderated mediation analysis based on regression, larger sample sizes are always preferable, but he does not provide a strict recommended number. According to this methodologist, researchers should select as large a sample as access allows, and even encourages conducting such analyses with small samples (33).

Moreover, one of the most important features of studies with a design similar to the present research is sample attrition, meaning that a significant number of individuals who participate in the first assessment may not complete the second phase. Additionally, general rules of thumb suggest that researchers should include at least 20 participants per predictor variable, and that larger samples improve the reliability of results (39, 40). As the present study examines relationships using moderated mediation analysis within a longitudinal design subject to attrition, we selected an appropriate sample size of 320 participants (39, 40).

Of the 320 individuals who initially completed the survey, 251 participants met all inclusion criteria and were retained for the final analysis. This sample size is considered adequate for detecting medium-sized effects in moderated mediation models.

We used the following inclusion criteria: 1) students enrolled in an academic program, 2) giving informed consent, 3) not being married, 4) not currently taking antidepressants, and 5) being between the ages of 18 and 35. Participants who did not answer at least 90% of the questionnaire were excluded from the analysis. Marriage was chosen as a criterion because it can influence depressive symptoms, either positively or negatively. Satisfying marital relationships may serve as a protective factor, reducing depressive symptoms (41-43), while low marital satisfaction has been associated with increased depressive symptoms (44-46). Therefore, we did not include married students to refine the specificity of our study sample. Similarly, individuals taking antidepressant medications were not included.

Approximately one month after wave 1, we started the follow-up wave in March 2023. Out of the 320 participants at baseline, 11 individuals did not provide contact information for the follow-up, 27 participants did not respond to the questionnaires during follow-up despite two reminders, 21 individuals were married by the follow-up wave, 6 individuals had started using antidepressants, and 3 individuals grew older than 35, thus, leaving 252 participants in the sample. Ultimately, 251 participants (117 men and 134 women) remained in the final sample after outliers were eliminated. The mean age of the participants was 22.57 (SD = 2.82), with ages between 18 to 34 years. Of the 251 participants, 128 (50.99%) were undergraduate students and 123 (49.01%) were graduate students from different universities in Yazd.

Procedure

After obtaining approval from the Research Ethics Board under the code IR.USWR.REC.1401.203, we started the data collection process in February 2023. The study targeted students enrolled at three major universities in Yazd, Iran, including the Yazd University, Yazd Shahid Sadoughi University of Medical Sciences, and the University of Science and Arts of Yazd. To recruit participants, the survey link was distributed in student-managed Telegram groups associated with these universities. With permission from group administrators, the survey link was pinned in the group chat, and students were invited to participate voluntarily.

Participants who tapped on the link were directed to an opening page containing the informed consent form, which outlined the study's procedure. The survey questions were accessible only after participants provided their informed consent. In addition, students

were asked to provide a contact address so they could be reached for the second phase of the study.

Approximately one month following the completion of the first wave, we re-contacted participants using the information they had provided and invited them to participate in the second wave. Again, the link we shared directed participants to an informed consent page before proceeding to answer the survey questions in the second wave of our study.

The first assessment phase involved sending a link to questions related to demographic information, and to items assessing SPP and symptoms of depression. In the second phase, conducted about one month after the first, we sent a link to the same individuals who had participated in the first phase. This link was created to assess challenges in reconciling with the past and symptoms of depression using the corresponding measures. Each of these phases is described in more detail below.

Our goal in the first phase was to assess the participants' desire for meeting perceived societal standards from a perfectionistic perspective and their baseline symptoms of depression using the scales. Accordingly, questions from both SPP and depressive symptoms scales were designed using the Porsline platform. The demographic questions along with a request to provide contact information for the second phase of the study were included in the same link. On the first page of the questionnaire, it was stated that by clicking the start button, participants indicated their consent to take part in the study.

The questionnaire link was posted in groups of students, with more than 1,000 members, who studied at universities of the Yazd Province. The group admins were asked to pin the link for one week so that all members would see it. Additionally, we asked group members to share the link with other students they knew, including class groups, to help with data collection. A few university professors were also contacted and asked to inform their students about the study. After completing the demographic section, we asked participants to leave one form of contact information (Telegram ID, phone number, or email) if they were willing to participate in the second phase of our study a month later.

As we needed 320 participants, the first assessment phase lasted more than a week. After the initial days, when about 120 people responded to the questionnaire, the link was reposted several times in the groups. Eventually, after about nine days from the initial posting, the required sample size was reached. The second assessment phase took place about one month after the first, in late February to early March. Based on our conceptual model, the aim of this phase was to evaluate participants' difficulty in accepting the past and to reassess depressive symptoms. Therefore, a new questionnaire was created again on the Porsline platform. This time, the link was only sent to those participants who had provided their contact information in the first phase.

Measures

Socially Prescribed Perfectionism: Three subscales comprise the 45-item Multidimensional Perfectionism Scale (MPS): self-oriented perfectionism (e.g., "The better I do, the better I am expected to do"), other-oriented perfectionism (e.g., "Everything that others do must be of top-notch quality"), and socially prescribed perfectionism (e.g., "The better I do, the better I am expected to do") (47). The Likert scale, which goes from 1 (strongly disagree) to 7 (strongly agree), is used to score the items. The factorial validity, discriminant validity, incremental validity, predictive validity, and reliability of the scale have all been shown to be good (48). Both men and women have been found to have acceptable alpha reliabilities for the three subscales (25). According to reports, the SPP subscale has a Cronbach's alpha of 0.84 (24). Similarly, the reliability and validity of the Persian version of MPS have been demonstrated (49). In the present study, Cronbach's alpha of SPP was acceptable (0.88). We used the SPP subscale at wave 1.

Depressive Symptoms: The 21-item Center for Epidemiological Studies Depression Scale (CESD) is a self-report measure used to assess depressive symptoms (e.g., "*I felt everything I did was an effort*") (50). The CESD items are scored on a 4-point scale, which ranges from 0 (*rarely or none of the time*) to 3 (*most or all of the time*). A Cronbach's alpha of 0.85 has been reported for the non-clinical sample and 0.90 for the clinical sample (50). Similarly, the Persian version of the CESD revealed a good Cronbach's alpha of 0.91 (51). This scale was used at both wave 1 and wave 2 of the present study and had acceptable reliability (0.92).

Difficulties Accepting the Past: The Accepting the Past Scale (ATPS) is a 27-item self-report instrument used to assess difficulties in accepting the past (e.g., "*sometimes I had the feeling that I've never had the chance to live*") (21). Items are scored on a 5-point scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). For ease of understanding, we reversed the scores on the ATPS, making higher scores reflective of increased challenges in accepting the past. The ATPS is reported to have acceptable convergent validity with measures of ego-integrity (21). Further research supports the reliability and validity of ATPS (24, 29). High internal consistency for the scale has been reported (21). The Persian version of the scale, consisting of 27 items and using a 7-point Likert scale, has demonstrated good validity, with a reported Cronbach's alpha of 0.89 (52). In the current study, Cronbach's alpha for the scale was 0.86.

Data Analytic Strategy

We implemented a moderated mediation analysis to address the questions of why and when people who conform to societal standards in a perfectionistic manner may experience symptoms of depression. We implemented data analysis using R version 4.3.1 (53).

The packages we used for our analyses were *psych* (54), *mediation* (55), and *ggplot2* (56). Theoretical frameworks were applied to guide and inform the investigation (33). This analytic approach integrates the mediation and the moderation analyses into an integrative moderated mediation analysis with further probing of these elements (33). The conceptual framework that we used to examine the relationships between our variables can be robustly tested using this analysis.

Our conceptual framework posits that the perceived or veridical societal expectations for perfection are an antecedent to depressive symptoms, with an unacceptable past mediating this relationship. Moreover, the intensity of these difficulties associated with past acceptance interacts with different degrees of perfectionism in striving to meet societal standards. In other words, the extent to which an unacceptable past influences symptoms of depression may be contingent on the degree to which these perfectionists strive to conform (24). Additionally, to ensure the precision of our findings and to account for the self-propagating effects of depression, we needed to control for the influence of baseline symptoms of depression.

In a moderated mediation analysis (also referred to as conditional process analysis), two distinct analyses are integrated. On one hand, mediation analysis attempts to answer the question of why or how two variables are linked. It detects the indirect effect that might exist in a well-established relationship between an antecedent and an outcome variable. This analysis identifies the mechanisms through which one variable may predict another. In the present study, difficulties accepting the past is the presumed mediator between SPP and depressive symptoms.

On the other hand, moderation analysis seeks to answer the question of when a certain effect exists between variables. It assesses whether an indirect or direct effect is moderated (i.e., intensified or weakened) under certain conditions. In our study, we assumed that varying levels of SPP among participants might influence the strength of the relationship between our variables of interest. Higher levels of perfectionism were expected to intensify the link between struggles in embracing the past and symptoms of depression, as depicted in Figure 1 (33).

There is an additional step in moderated mediation analysis. To assess whether the mediation effect depends on different levels of the moderator (SPP), we conducted a simple slopes analysis (33). However, since the interaction between the moderator and the variable it was expected to moderate was not statistically significant in our study, the simple slopes analysis did not yield relevant results.

In sum, SPP serves two roles in our model: first, as an antecedent predicting symptoms of depression through making the past acceptance a hard task; and second, as a moderator that potentially intensifies the effect of an unacceptable past on symptoms of depression. In simple terms, the strength of struggles in embracing the past is expected to depend on the level of perfectionism toward external standards.

It is noteworthy that this strategy in social sciences differs in both theoretical orientation and estimation method compared to traditional SEM. Hayes discusses these differences in detail (31).

Importantly, conditional process analysis, as applied in this study, is regression-based, not SEM-based. Therefore, it does not involve global model fit indices. Evaluation of the model relies on the statistical significance and confidence intervals of individual path estimates, particularly the indirect effects (31-33).

Before implementing the moderated mediation analysis, we used a sequential regression procedure to estimate relationships among the variables in the EMPDS. To address potential multicollinearity, we standardized SPP and difficulties accepting the past before creating the interaction term. Prior to running the regression-based moderated mediation analysis, we verified the key assumptions of multiple regression. Visual inspection of residual plots and statistical tests confirmed that the assumptions of normality, linearity, multicollinearity, and homoscedasticity were met.

Additionally, we performed a bootstrapping analysis with 5,000 resamples to evaluate the strength and significance of the indirect effect through difficulties accepting the past (32, 33). This comprehensive approach improves the robustness and reliability of our findings.

Results

Descriptive Statistics

Demographic characteristics of participants including gender, age, and educational level are presented in Table 1. Bivariate correlations, alpha reliabilities, and descriptive statistics are shown in Table 2. The acceptable alpha reliabilities ranged from 0.86 to 0.92. Interestingly, at follow-up, we found a positive correlation of 0.39 between baseline SPP and difficulties accepting the past. Both baseline depressive symptoms (0.17, $P < 0.001$) and depressive symptoms at follow-up (0.19, $P < 0.001$) have positive and statistically significant correlations with baseline SPP, despite the weak correlation. These results indicate a weak but significant correlation between these variables. Furthermore, at follow-up, we found a significant positive correlation of 0.40 between symptoms of depression and difficulty accepting the past.

Table 1. Demographic Characteristics of the Study Participants (N = 251) Including Gender, Educational Level, and age Distribution (Mean, SD, Minimum, and Maximum Values)

Variable	Category	Frequency	Percentage	Mean Age	SD	Min Age	Max Age
Gender	Male	117	46.61%	22.53	3.02	18	30
	Female	134	53.38%	22.61	2.65	18	34
	Total	251	100%	22.57	2.82	18	34
Educational Level	Bachelor's	128	50.99%				
	Master's	62	24.70%				
	Doctorate	61	24.30%				
	Total	251	100%				

Table 2. Correlation Matrix, Means, and Standard Deviations for Socially Prescribed Perfectionism, Depressive Symptoms, Difficulties Accepting the Past, Age, and Gender

Variables	1	2	3	4	5	6	7
1. Socially prescribed perfectionism (time 1)							
2. Depressive symptoms (time 1)	0.17***						
3. Difficulties accepting the past (time 2)	0.39***	0.50***					
4. Socially prescribed perfectionism (time 1) x difficulties accepting the past (time 2)	0.07	-0.04	0.15				
5. Depressive symptoms (time 2)	0.19***	0.34***	0.40***	-0.00			
6. Age	-0.05	-0.05	-0.15	0.02	-0.10		
7. Gender	-0.02	-0.02	-0.01	-0.01	0.04	0.01	
Mean	29.0	22.7	56.8	0.3	28.9	22.5	1.5
Standard deviation	7.9	11.4	12.8	1.0	11.3	2.8	0.4
Minimum	13.0	1	32.0	-2.1	3	18	1
Maximum	48.0	48.0	88.0	5.1	52.0	34.0	2
Cronbach's alpha (α)	0.88	0.92	0.86	N / a	0.92	N / a	N / a

N = 251, *P < 0.05, **P < 0.01, ***P < 0.001.

Mediator Analyses

To test our first hypothesis, we investigated whether struggles in past acceptance mediated the relationship between SPP and symptoms of depression. Results (see Table 3) showed that the direct effect between SPP and depressive symptoms was positive and statistically significant (b = 0.27, SE = 0.08, 95% CI = [0.10; 0.45]). Moreover, SPP was positively associated with difficulties accepting the past (b = 0.64, SE = 0.09, 95% CI = [0.46; 0.83]). Similarly, difficulties accepting the past was positively associated with depressive symptoms (b = 0.35, SE = 0.05, 95% CI = [0.25; 0.45]). Importantly, after controlling for difficulties accepting the past, SPP failed to predict symptoms of depression, indicating full mediation (57). Therefore, Hypothesis 1 was supported.

Table 3. Sequential Regression Analysis Results for Relationships between Socially Prescribed Perfectionism, Difficulties Accepting the Past, and Depressive Symptoms

Variable	Effect	SE	[95% CI]
Follow-up depressive symptoms regressed on socially prescribed perfectionism	0.27**	0.08	[0.10; 0.45]
Difficulties accepting the past regressed on socially prescribed perfectionism	0.64***	0.09	[0.46; 0.83]
Follow-up depressive symptoms regressed on difficulties accepting the past	0.35***	0.05	[0.25; 0.45]
Follow-up depressive symptoms regressed on baseline depressive symptoms	0.34***	0.05	[0.23; 0.46]
Difficulties accepting the past regressed on baseline depressive symptoms	0.56***	0.06	[0.44; 0.68]
Follow-up depressive symptoms regressed on socially prescribed perfectionism controlling for difficulties accepting the past	0.05	0.09	[-0.12; 0.23]
Follow-up depressive symptoms regressed on socially prescribed perfectionism controlling for baseline depressive symptoms and difficulties accepting the past	0.06	0.08	[-0.11; 0.23]

Note. CI: confidence interval; SE: standard error; **P < 0.01, ***P < 0.001

Additionally, we conducted a bootstrapping analysis to probe the mediation effect, and the results (Table 4) showed that the proportion mediated by difficulties accepting the past is statistically significant (b = 0.72, 95% CI = [0.27; 2.53]).

To get a better understanding, the visualization of mediation results is displayed in Figure 2.

Table 4. Mediation and Moderation Analysis Results Testing the Indirect and Interactive Effects of Socially Prescribed Perfectionism, Difficulties Accepting the Past, and Depressive Symptoms (N = 251)

Index	Estimate	95% CI Lower	95% CI Upper
ACME	0.16***	0.06	0.28
ADE	0.06	-0.11	0.23
Total Effect	0.22**	0.05	0.39
Prop. Mediated	0.72**	0.27	2.53
Interaction Term			
Socially prescribed perfectionism x Difficulties accepting the past	**Estimate**	**SE**	**t**
	-0.007	0.006	-1.20

Note. N = 251. Bootstrap sample size: 5000. ACME: Average Causal Mediation Effect; ADE: Average Direct Effect; Prop. Mediated: Proportion Mediated; CI: confidence interval; SE: standard error. *P < 0.05, **P < 0.01, ***P < 0.001.

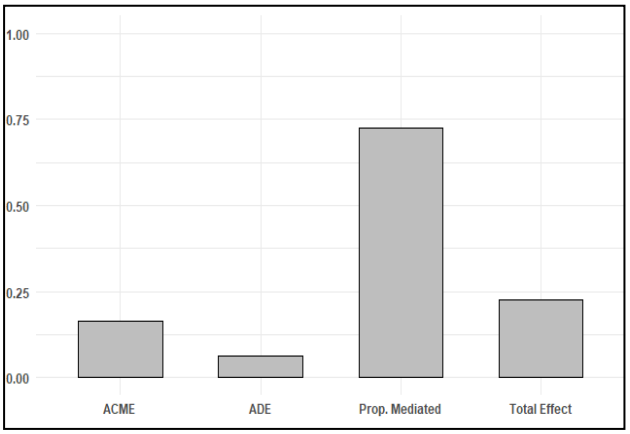

Figure 2. Visualization of the Mediation Analysis Results Showing the Indirect Effect of Socially Prescribed Perfectionism on Depressive Symptoms through Difficulties Accepting the Past (N = 251)

Note. ACME: Average Causal Mediation Effect; ADE: Average Direct Effect; Prop. Mediated: Proportion Mediated.

Moderated Mediation

We investigated the second hypothesis by examining the possible moderating effect of SPP in the association between depressive symptoms and difficulties accepting the past. By doing this, we created an interaction between difficulties accepting the past and SPP. However, Table 4 shows that the interaction effect between SPP and difficulties accepting the past did not reach statistical significance (b = -0.007, SE = 0.006, Boot CI = [-0.017; 0.007]). As a result, Hypothesis 2 cannot be supported, suggesting that there is no noticeable moderating influence between SPP and difficulties in accepting the past.

Discussion

EMPDS emphasizes the important role of an unacceptable past in perfectionists' susceptibility to depressive symptoms, and research has shown these persons can be more vulnerable to a past perceived as futile due to their maladaptive perfectionistic concern about others' standards (24). The present study aimed to investigate whether struggles in positively appraising the past can explain why SPP predicts symptoms of depression among Iranian students studying in Yazd that included unmarried undergraduate and graduate students. If so, can this type of perfectionism moderate the strength of these struggles in past evaluation and, as a result, intensify symptoms of depression? Our findings indicated that this perfectionistic trait predicts symptoms of depression by increasing challenges in embracing past experiences among unmarried students in Yazd. However, the extent to which this unacceptable past affects depressive symptoms was not dependent on the different levels of SPP. Hence, our first hypothesis was supported, but our second hypothesis was not .

We found that people with an extreme tendency to conform to perceived perfectionistic standards imposed by others develop symptoms of depression and this link occurs indirectly through the detrimental effects of this type of perfectionism on students' past evaluation. These students with perfectionism face difficulties in accepting their past and incorporating their experiences into an individually meaningful identity. Consequently, they develop symptoms of depression over time. This finding was consistent with previous research (22, 23, 24). Therefore, a dissatisfactory past explains why SPP leads to symptoms of depression over time.

People have the great ability of mental time travel, through which they ponder over their past, present, and future experiences (58). Moreover, identity is a crucial lens through which experiences are interpreted, helping individuals make sense of them for themselves (59, 60). Throughout this meaning-making, we either interpret our difficulties as identity-congruent and psychologically relevant or incongruent and irrelevant to us. The former interpretation results in viewing difficulties as important and personally meaningful experiences. This evaluation serves our identity to become who we are and who we want to be. On the contrary, the latter approach towards the interpretation of our difficulties results in a despondent perspective by which we consider our difficulties purposeless, unnecessary, and a waste of time. Not surprisingly, the more we interpret our past experiences as congruent and necessary to our identity, the higher past acceptance we have, and as a result, the better we feel and the more we have self-worth (21).

Accordingly, some people might be more prone to failing to accept their past due to detrimental personality traits like SPP. People with this type of perfectionism base their judgments and standards on others' expectations, which may be perceived or veridical, and stem from important others and the society as a whole (61). As a result of overreliance on others' standards, they disregard their personal importance, identity, and authenticity, leading to lower self-worth and higher depressive symptoms.

Putting it all together, SPP can steal individuals' authenticity and the personally meaningful congruency between their identity and past experiences. Consequently, they struggle to accept their past, and their meaning-making undergoes a conformity-based perspective rather than a perspective based on personal values. This unacceptance of the past gives rise to their depressive symptoms.

Furthermore, our investigation revealed that SPP failed to explain the conditions under which it contributes to the emergence of depressive symptoms. In other words, struggles in past acceptance were not dependent on varying levels of SPP. This finding is inconsistent with previous research, which indicated that a dissatisfactory past is more intense at higher levels of SPP and vice versa (22, 24).

The findings of previous research demonstrate that cultural and societal backgrounds significantly influence people's thoughts, judgments, emotions, and behaviors. While collectivistic cultures value group objectives, individualistic cultures encourage people to pursue their own goals. Also, cultural context affects self-expression and social harmony through cognitive processes, such as analytical thinking in Western cultures and holistic thinking in interdependent cultures (62, 63). Thus, differences in identity and self-concept can be explained by cultural differences.

Moreover, the effect of social identity in shaping judgements has been underscored in previous research (59). SPP, as a dimension of perfectionistic behavior, shows high relevance to cultural and societal contexts (64, 65). Given that our study represents the first exploration of EMPDS in Iran, it is likely that the cultural background has a noticeable role in shaping the relationships between the components of this model.

In essence, our findings emphasize the need to consider cultural and societal factors when interpreting the dynamics of SPP and its interplay with difficulties accepting the past in the context of depression. The intricate interplay of these variables may not conform to patterns observed in different cultural settings, highlighting the importance of exploring these relationships within diverse cultural contexts for a comprehensive understanding.

Limitation

This study used a diverse sample of undergraduate and graduate students in Yazd to investigate EMPDS in a collectivistic culture. But some major limitations that affect our findings are worth noting. Firstly, there was a positive and significant correlation, but not a strong one, between SPP and depressive symptoms. When interpreting our findings, this should be taken into consideration. Furthermore, there is a chance of response

bias because self-reporting is conducted through an online survey. To improve the method, future research should consider using more reliable data collection techniques. Additionally, the high attrition in our study may have impacted the observed insignificant moderation and relationships between variables. Future studies must address this attrition problem. Furthermore, while the use of two time points in testing the EMPDS model is more informative than cross-sectional designs, we acknowledge that it still presents a significant limitation in establishing cause-and-effect inferences. Future research employing moderated mediation models could benefit from a broader temporal framework, incorporating multiple time points or a longitudinal design that more thoroughly tracks changes over time to address this limitation. Such an approach would allow for a more valid examination of the EMPDS. Finally, it is noteworthy that our study focused on a general population of unmarried students in Yazd. Therefore, the results should not be generalized to other populations. Future studies could investigate the EMPDS in other cultural or demographic contexts.

Conclusion

Among a diverse sample of undergraduate and graduate students, we explored the complex relationship between SPP, difficulties accepting the past, and depressive symptoms. Our findings highlight the critical role that a meaningless past with a sense of futility plays in mediating the relationship between SPP and symptoms of depression. In particular, our results showed that although SPP affects past acceptance in individuals, it does not intensify the effects of these difficulties in accepting their past on depressive symptoms over time.

In sum, our results indicate that psychotherapists at university mental health centers who work with student clients exhibiting SPP can consider the possibility that these clients may benefit from therapies and protocols that support a process of meaning-making. This may help reduce their dissatisfaction with the past and alleviate depressive symptoms. Additionally, our study emphasizes the importance of considering cultural and societal influences when interpreting and applying insights from EMPDS.

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Conflict of Interest

None.

Author's Contributions

This study was originally extracted from the Master's Thesis of Mr. Milad Zare. His contributions to this study include conception of the work, data collection, and data analysis. He also drafted the first edition of the work.

Dr. Marjan Poshtmashhadi led the project by major modifications to the design of the work and critical supervision. She also critically reviewed the manuscript multiple times for content refinement. Additionally, she has contributed to the interpretation of the results and added depth to the discussion. Also, she provided the final approval of the version to be published.

Dr. Hamid Poursharifi substantially contributed to the study by discussing and finalizing the methodology and the model used for the study in terms of statistical considerations. He also reviewed the work critically to improve the clarity, originality, and importance of the project and provided valuable insights for improvements in the text.

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