



Original Article

# Predicting moral behavior based on psychological well-being and attitude to time: The mediating role of the self-transcendence and fundamental values

\*Arezou Delfan Beiranvand<sup>1</sup>; Khosro Rashid<sup>2</sup>; Ahmad Bayat<sup>1</sup>; Rasool Kordnooghi<sup>2</sup>

<sup>1</sup>Ph.D. in educational psychology, Faculty of Economic and Social Sciences, Bu-Ali Sina University, Hamedan, Iran.

<sup>2</sup>Associate professor, Department of Psychology, Faculty of Economic and Social Sciences, Bu-Ali Sina University, Hamedan, Iran.

## Abstract

**Introduction:** This study aimed to predict moral behavior based on psychological well-being and attitude to time, considering the mediating role of self-transcendence and fundamental values.

**Materials and Methods:** The statistical population of this descriptive and correlational study consisted of all students of Bu-Ali Sina University in Hamadan-Iran in the 2018-2019 academic year. The sample size was 372 students selected by the convenient sampling method. The instruments included Psychological Well-being (Diener et al., 1985), Attitude to Time (Mello and Worrell, 2010), Self-transcendence (Levinson et al., 2005), Researcher-Made Scale of Moral Behavior, and Fundamental Values Scale (Jason et al., 2001). Data were analyzed by path analysis using SPSS-25 and LISREL.

**Results:** The results indicated that the proposed model has a good fitness with the empirical data (GFI= 0.95, IFI= 0.98, CFI= 0.95). The results showed that self-transcendence and fundamental values significantly mediate the relationship between moral behavior, psychological well-being, and attitude to time ( $P < 0.01$ ). Attitude to time and psychological well-being significantly affect moral behavior by mediating self-transcendence and fundamental values.

**Conclusion:** Based on the findings of this research, the probability of performing moral behavior by people with psychological well-being and positive attitude to time can be predicted when people have fundamental values and gain knowledge about them. It is also necessary that these people have reached a level of self-transcendence. Value and self-transcendence connect moral behavior with psychological well-being and attitude to time and facilitate the possibility of moral behavior in social situations.

**Keywords:** Attitude to time, Moral behavior, Psychological well-being, Self-transcendence, Value

## Please cite this paper as:

Delfan Beiranvand A, Rashid Kh, Bayat A, Kordnooghi R. Predicting moral behavior based on psychological well-being and attitude to time: The mediating role of the self-transcendence and fundamental values. *Journal of Fundamentals of Mental Health* 2023 Sep-Oct; 25(5): 317-326. DOI: 10.22038/JFMH.2023.23289

## Introduction

Psychologists' interest in moral behavior in maintaining social order has long been the subject of developmental questions and clinical consequences (1). Based on this, the existing

studies have investigated and provided us with the antecedents and consequences of moral behaviors in social environments (2). The cognitive approach is the most common framework widely adopted to study moral

## \*Corresponding Author:

Faculty of Economics and Social Sciences, Bu-Ali Sina University, Hamadan, Iran.

arezou.delfan14@gmail.com

Received: Jul. 22, 2022

Accepted: Aug. 16, 2023

behavior. At the same time, rich evidence shows that cognition and emotion are the two main factors influencing moral behavior (3). However, there is still little knowledge about the emotional and cognitive processes associated with moral behavior. Nevertheless, several studies have emphasized the role of various factors in predicting moral behavior, including educational styles, ego strength and self-transcendence (4), moral intelligence, personality traits (5), moral attitude, moral identity, psychological benefit, psychological cost (6-10), perception of social interaction, dimensions of identity, and happiness (11,12). In this research, we seek to investigate other predictors of moral behavior, including:

1. Psychological well-being: It is a vital aspect of a person's general health and happiness, including mental, social, psychological, health-related behaviors and practices. In psychological well-being, a person experiences positive affects, positive psychological functioning, and a sense of meaning and purpose (13).
2. Attitude to time: People's positive and negative tendencies towards the past, present, and future are said and affect people's perceptions, expectations, direction of attention, interpretations, formulation of purposes, choices, and actions (14). Attitude to time has six components: past positive, past negative, present positive, present negative, future positive, and future negative (15).
3. Fundamental values: These are internalized cognitive structures that guide choices by evoking the feeling of the basic principles of right and wrong and act as general principles that guide behavior (16). Fundamental values include the value of harmony (having meaning and purpose in life, openness, and good judgment), warmth (humor, living in the present, and being kind), connection with nature (respecting nature and having childlike wonder), and intelligence (genius and problem-solving ability) (17).
4. Self-transcendence involves a fundamental change in one's attitude. It means that the person's attitude changes from a selfish focus to caring for others and goes beyond his/her level (18). It is important to pay attention to morality as one of organizations' most vital issues (19) because performing moral behaviors in various situations facilitates social interaction and the functioning of individuals in individual and social life (20). Following moral principles guarantees respect and social affairs; immoral behavior leads to

disrespect and social exclusion (21). In recent decades, immoral behaviors under the name of unproductive behaviors have become common among students of higher education institutions (22). For example, cheating, substance use, lying, plagiarism, discriminatory behavior, absenteeism, passive attendance, procrastination, laziness and peer pressure, and academic dishonesty (23). Therefore, investigating moral development and training moral values in modern societies has become urgent and should be at the forefront of educational affairs (24). The factors affecting morality require urgent investigation because observing moral principles and values in all dimensions is one of the most important ways to survive and improve the health of social life (20). Therefore, the main purpose of this research was to determine whether moral behavior could be predicted based on psychological well-being and attitude to time, considering the mediating role of self-transcendence and fundamental values. Has goodness fit the model to predict moral behavior based on psychological well-being and attitude to time concerning the mediating role of self-transcendence and fundamental values?

### Materials and Methods

The statistical population of this descriptive and correlational study consisted of all students of Bu-Ali Sina University-Hamadani city-Iran in the 2018-2019 academic year. There are different methods regarding the sample size in path analysis and Structural Equations Modeling (SEM). For example, because the methodology of SEM is similar to some aspects of multivariate regression, it is possible to use the principles of determining the sample size in multivariate regression analysis to determine the sample size used in SEM. In multivariate regression analysis, the ratio of the number of samples (observations) to the independent variables should not be less than 5. Otherwise, the regression equation results will not be generalizable (25). Also, considering 15 observations for each predictor variable in multiple regression analysis with the usual standard least squares method is considered a good rule of thumb (26,27). Also, it is always emphasized that the sample size should be at least 200 people (26). Therefore, according to the above explanations, 372 people were selected as the study sample by the convenient

sampling method from the faculties of economic and social sciences, basic sciences, engineering, humanities, and agriculture and then completed the desired scales. The inclusion criteria included the desire to participate and being a student studying at Bu-Ali Sina University in the first half of the 2018-2019 academic year. The exclusion criteria included not willingness to participate in the research, distorted scales, and being educated at university.

#### Research instruments

*A) Psychological Well-being Scale:* This scale consists of subscales of life satisfaction, positive affect, and negative affect. 1. Life satisfaction (SWLS): This subscale has five items and was created by Diener et al. (28) to measure the cognitive dimension of psychological well-being based on an 8-point Likert scale (from 0 for completely disagree to 7 for completely agree). Diener et al. reported the reliability and validity of this scale using a test-retest correlation coefficient (0.82) and Cronbach's alpha coefficient (0.87) (28). This scale was also validated in Iran. The internal consistency coefficient was reported using Cronbach's alpha of 0.83 (29). The internal consistency of this scale in the present study was obtained by Cronbach's alpha coefficient of 0.85. 2. Positive and Negative Affect Schedule (PANAS): This subscale has 20 items. Ten items measure positive affect (positive feelings), and ten items measure negative affect (negative feelings). Each item has a 5-point Likert scale. In this spectrum, the number 1 indicates no experience of excitement, and the number 5 indicates a very high experience of excitement. This subscale was created to examine the emotional dimension of well-being based on the positive and negative emotional program of Watson and Clark Tellegen in 1988. In the Iranian sample, the reliability for the subscales was 0.87. (30). Cronbach's alpha coefficient obtained the internal consistency of this scale in the current study for a positive affect of 0.82 and a negative affect of 0.85.

*B) Attitude to Time Scale:* This scale has 30 items made by Mello and Worrell based on a five-point Likert degree (completely disagree to agree). This scale measures six types of attitudes to time. Past positive, past negative, present positive, present negative, future positive, and future negative are subscales of attitude to time scale (15). The reliability using

Cronbach's alpha was obtained between 0.70 and 0.88 in the sample implemented in America. This scale was translated into Persian language and validated in Iran. The reliability of this scale in the Iranian sample using Cronbach's alpha coefficient (past positive 0.79, past negative 0.83, present positive 0.83, present negative 0.84, future positive 0.63, and future negative 0.72) has been obtained (31). Cronbach's alpha coefficient obtained the internal consistency of this scale in the present study for past positive 0.83, present positive 0.89, and future positive 0.70.

*C) Adult Self-transcendence Scale (ASTI):* This scale has 14 items and was created by Levinson et al. based on a 4-point Likert scale (strongly disagree to strongly agree). The reliability of this scale has been reported using Cronbach's alpha coefficient of 0.75 (32). In Iran, the reliability of this scale has been reported using Cronbach's alpha coefficient of 0.781 (33). In the present study, the internal consistency of the whole scale was obtained by Cronbach's alpha coefficient of 0.867.

*D) Fundamental Values Scale (FVS):* This scale has 23 items and was created by Jason et al. based on a 5-point Likert scale. They reported the validity of this scale using Cronbach's alpha coefficient for the components of harmony, warmth, intelligence, and connection with nature: 0.78, 0.75, 0.62, and 0.68, respectively. Also, the reliability of this scale has been reported as 0.62 to 0.78 by test-retest (17). In Iran, the validity of the scale has been obtained using Cronbach's alpha of 0.89. Also, its convergent and divergent validity has been reported as suitable (34). In the present study, the internal consistency of the whole scale was obtained by Cronbach's alpha coefficient of 0.71.

*E) Researcher-Made Moral Behavior Scale:* This scale contains 43 items. Each item of this scale has a 5-point Likert scale (almost always= 5, most of the time= 4, sometimes= 3, rarely= 2, and never= 1). The researcher-made scale of moral behavior has three subscales (society-centered positive, community-centered-negative, and person-centered). The internal consistency of this scale was 0.95 for the whole scale and 0.99, 0.85, and 0.82 for the positive community-centered, negative community-centered, and person-centered sub-components of this scale, respectively. In the present research, the general scale of moral behavior is considered.

Moral considerations considered in this research included informed consent and voluntary participation of the subjects, the right to withdraw from the research, disclosure of information, and respect for privacy (confidentiality).

The software used in this research was SPSS-25 and LISREL. To analyze the data, used some statistical methods such as mean, standard deviation, skewness-kurtosis, correlation matrix, path analysis, Sobel test, and goodness-of-fit indices for the compiled model such as the Root Mean Square Error of Approximation; RMSEA), Incremental Fit Index (IFI), Confirmatory Factor Analysis (CFI), Goodness-of-Fit Index (GFI), and X<sup>2</sup>/df fit index.

## Results

The participants of this research were 372 students of Bu-Ali Sina University, with a mean

and standard deviation of age  $24.71 \pm 5.62$  (18-50 years). From the research sample, 249 people (66.9%) were women, and 123 people (33.1%) were men. 30 people (8.1%) were married, and 342 people (91.9%) were single. In terms of educational status, 220 people (58.8%) were B.A., 107 people (28.6%) were M.Sc., and 45 people (11.6%) were Ph.D. Seventy-eight students were from the Faculty of Economic and Social Sciences, 64 from the Faculty of Humanities, 103 from the Faculty of Basic Sciences, 31 from the Faculty of Agriculture, and 85 from the Faculty of Engineering. The data analyzed through Pearson correlation and path analysis. First, the mean and standard deviation of the variables were checked. The skewness-kurtosis of variables was also calculated to check the normality of the distribution. The results are presented along with the mean and standard deviation of the variables in Table 1.

**Table 1.** The mean, standard deviation, skewness, and kurtosis of the studied variables

Indexes	Mean	Standard deviation	Skewness	Kurtosis
Life satisfaction	19.90	6.99	-0.08	-0.66
Positive affect	33.67	5.58	0.01	0.03
Negative affect	25.54	7.37	0.02	0.04
Future positive	18.45	3.84	-0.48	-0.48
Past positive	16.52	4.20	-0.20	-0.20
Present positive	16.36	4.27	-0.39	-0.39
Self-transcendence	45.58	7.24	-0.14	-0.14
Fundamental values	81.21	10.27	0.05	0.05
Moral behavior	174.29	21.92	-0.90	-0.90

According to Table 1, the research variables have a normal distribution (range of skewness and kurtosis of the variables between +1 and -

1). Next, the correlation among the variables was checked. The results of this are presented in Table 2.

**Table 2.** The correlation matrix of the variables

Variable	1	2	3	4	5	6	7	8	Tolerance	VIF
1. Life satisfaction	-								0.59	1.78
2. Positive affect	0.42**	-							0.52	1.90
3. Negative affect	-0.21**	-0.12**	-						0.81	1.22
4. Future positive	0.41**	0.52**	-0.18**	-					0.56	1.76
5. Past positive	0.28**	0.29**	-0.26**	0.31**	-				0.78	1.27
6. Present positive	0.62**	0.50**	-0.34**	0.60**	0.40**	-			0.39	2.51
7. Self-transcendence	0.44**	0.27**	-0.33**	0.37**	0.30**	0.47**	-		0.64	1.54
8. Fundamental values	0.42**	0.60**	-0.25**	0.43**	0.36**	0.49**	0.46**	-	0.53	1.91
9. Moral behavior	0.24**	0.25**	-0.18**	0.22**	0.24**	0.23**	0.19**	0.51**	-	-

\*\* $P < 0.01$ , \* $P < 0.05$

As can be seen in Table 2, there is a significant correlation between all variables ( $P < 0.01$ ). We used Durbin-Watson test to check the

independence of errors, and the results show no correlation between errors (D.W= 1.81, the range from 1.5 to 2.5 is acceptable). We

checked multiple collinearity among predictor variables using Variance Inflation Factor (VIF) and tolerance. The results of Table 2 show that there is non-collinearity among the variables (the VIF range is less than 5, and the tolerance is more than 0.1 acceptable). Path analysis was used to test the research model. In the first stage, the model's overall fit was analyzed, and then the standard coefficients of the relationships between the variables were analyzed. The proposed conceptual model of

this research was as follows: exogenous variables of psychological well-being (life satisfaction, positive affect, and negative affect) and attitude to time (future positive, past positive, present positive) through the mediators of self-transcendence and values fundamental, these affect moral behavior. Figure 1 shows the relationships among research variables in standard mode and Figure 2 shows the relationships among research variables in a significant state.

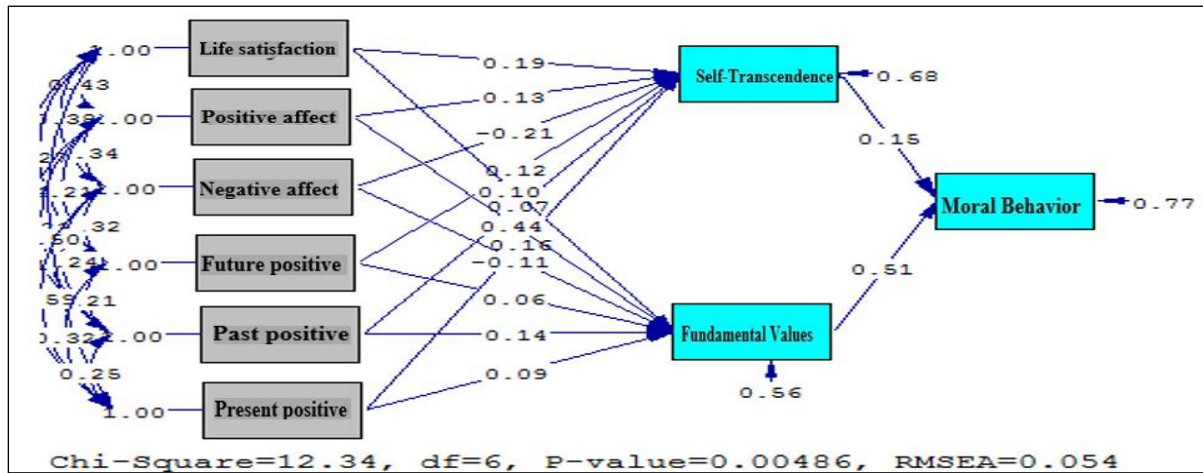


Figure 1. Relationships among research variables in standard mode

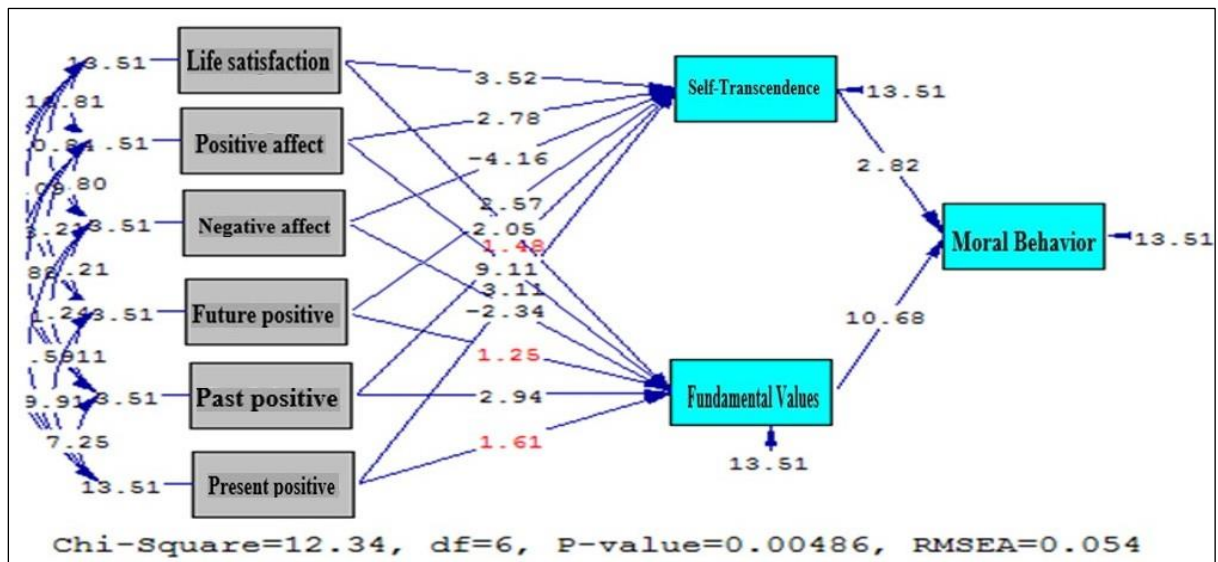


Figure 2. Relationships among research variables in a significant state

First, to determine the overall fit of model, the fit indices were considered. The fit indices are presented in Table 3. For the X<sup>2</sup>/df index, values less than 5 are suitable, and closer to zero indicates a good model fit. For the GFI, IFI, and CFI indexes, 0.90 and higher than 0.90 are considered acceptable goodness of fit, which indicates that the model is suitable. About the

RMSEA index, values close to 0.05 or less indicate a good fit of the model, and a value of 0.08 or less indicates a logical error of approximation. A value higher than 0.10 indicates the requirement to reject the pattern. The fit indices presented in Table 3 show the good fit of the model. Therefore, the proposed model is a good fit with the empirical data.

**Table 3.** The fit indices for the designed model

Indices	X <sup>2</sup>	df	X <sup>2</sup> /df	GFI	IFI	CFI	RMSEA
Model	12.34	6	2.05	0.95	0.98	0.96	0.054
Acceptable domain	-	-	X <sup>2</sup> /df < 5	GFI > 0.90	IFI > 0.90	CFI > 0.90	RMSEA < 0.08

In the following, the effects related to all the different paths in the model are considered, and the standard coefficients of the paths, along

with their significance levels, are presented in Table 4.

**Table 4.** The coefficients of the model predict moral behavior based on psychological well-being and attitude to time, considering the mediating role of self-transcendence and fundamental values

Direct path	Regression coefficient	t-statistics
The effect of life satisfaction on self-transcendence	0.19	3.52
The effect of positive affect on self-transcendence	0.13	2.78
The effect of negative affect on self-transcendence	-0.21	-4.16
Future positive effect on self-transcendence	0.12	2.57
Retrospective positive effect on self-transcendence	0.07	1.48
The effect of positive attitude on self-transcendence	0.16	3.11
The effect of life satisfaction on fundamental values	0.10	2.05
The effect of positive affect on fundamental values	0.44	9.11
The effect of negative affect on fundamental values	-0.11	-2.34
A positive forward-looking effect on fundamental values	0.06	1.25
Positive retroactive effect on fundamental values	0.14	2.94
Positive influence on fundamental values	0.09	1.61
The effect of self-transcendence on moral behavior	0.15	2.81
The effect of fundamental values on moral behavior	0.51	10.48

t = 2.98, significant at the 0.01 level

The analysis of the data obtained from the standard coefficients of the model in Table 4 shows that the effect of life satisfaction on self-transcendence ( $\beta = 0.01$ ,  $P < 0.19$ ) and fundamental values ( $\beta = 0.10$ ,  $P < 0.01$ ) are significant. The effect of positive affect on self-transcendence ( $P < 0.05$ ,  $\beta = 0.13$ ) and fundamental values ( $P < 0.01$ ,  $\beta = 0.44$ ) are significant. The effect of negative affect on self-transcendence ( $\beta = -0.21$ ,  $P < 0.05$ ) and fundamental values ( $\beta = -0.11$ ,  $P < 0.05$ ) are significant.

The future positive effect on self-transcendence is significant ( $\beta = 0.12$ ,  $P < 0.05$ ), but it is not significant on fundamental values ( $\beta = 0.06$ ,  $P > 0.05$ ). The past positive effect on

fundamental values ( $P < 0.05$ ,  $\beta = 0.14$ ) is significant, but it is not significant on self-transcendence ( $P > 0.05$ ,  $\beta = 0.07$ ).

The effect of the present positive on self-transcendence is significant ( $\beta = 0.16$ ,  $P < 0.05$ ), but it is not significant on fundamental values ( $\beta = 0.09$ ,  $P > 0.05$ ). The effect of self-transcendence ( $\beta = 0.05$ ,  $P < 0.15$ ) and fundamental values ( $\beta = 0.51$ ,  $P < 0.01$ ) are significant on moral behavior. Also, to investigate the mediating role of self-transcendence and fundamental values in the relationship among the dimensions of psychological well-being and the dimensions of positive attitude to time and moral behavior, the Sobel test was used (Table 5).

**Table 5.** Examining the mediating role of self-transcendence and fundamental values in the relationship among psychological well-being and attitude to time with moral behavior

Predictor variable	Criterion variable	Mediator variable	Z	P
Life satisfaction	Moral behavior	Self-transcendence	3.52	0.001
Life satisfaction	Moral behavior	Fundamental values	7.30	0.001
Positive affect	Moral behavior	Self-transcendence	3.32	0.001
Positive affect	Moral behavior	Fundamental values	8.42	0.001
Negative affect	Moral behavior	Self-transcendence	-3.30	0.001
Negative affect	Moral behavior	Fundamental values	-4.60	0.001
Future positive	Moral behavior	Self-transcendence	3.41	0.001
Future positive	Moral behavior	Fundamental values	7.26	0.001
Past positive	Moral behavior	Self-transcendence	3.28	0.001
Past positive	Moral behavior	Fundamental values	6.63	0.001
Present positive	Moral behavior	Self-transcendence	3.61	0.001
Present positive	Moral behavior	Fundamental values	8.37	0.001

The results of the Sobel test in Table 5 show that self-transcendence ( $P < 0.01$ ,  $Z = 3.52$ ) and fundamental values ( $P < 0.01$ ,  $Z = 7.30$ ) in the relationship between life satisfaction and moral behavior ( $P < 0.01$ ,  $Z = 3.52$ ) have a significant mediating role. The self-transcendence variable significantly mediates the relationship between positive affect and moral behavior ( $P < 0.01$ ,  $Z = 3.32$ ). The fundamental values variable also significantly mediated the relationship between positive affect and moral behavior ( $P < 0.01$ ,  $Z = 8.42$ ). Self-transcendence ( $P < 0.01$ ,  $Z = -3.30$ ) and fundamental values ( $P < 0.01$ ,  $Z = -4.60$ ) have a significant mediating role in the relationship between negative affect and moral behavior. Self-transcendence ( $P < 0.01$ ,  $Z = 3.41$ ) and fundamental values ( $P < 0.01$ ,  $Z = 7.26$ ) have a significant mediating role in the relationship between future positive and moral behavior. The self-transcendence ( $P < 0.01$ ,  $Z = 3.28$ ) and fundamental values ( $P < 0.01$ ,  $Z = 6.63$ ) have a significant mediating role in the relationship between past positive and moral behavior. Self-transcendence ( $P < 0.01$ ,  $Z = 3.61$ ) and fundamental values ( $P < 0.01$ ,  $Z = 8.37$ ) have a significant mediating role in the relationship between present positive and moral behavior.

## Discussion

The findings of this research indicate that the prediction of moral behavior based on psychological well-being and attitude to time is a suitable fit concerning the mediating role of self-transcendence and fundamental values.

The findings show that psychological well-being (life satisfaction, positive affect, and negative affect) and attitude to time (past positive, present positive, and future positive) can affect moral behavior based on the mediating role of self-transcendence and fundamental values. In this way, it is possible to predict moral behavior based on psychological well-being and attitude to time by meditating on self-transcendence and fundamental values. Self-transcendence and fundamental values significantly mediate between moral behavior with attitude to time and psychological well-being. Also, the findings show that self-transcendence and fundamental values have a positive direct effect on moral behavior.

Moral behavior can be predicted directly based on self-transcendence and fundamental values. In line with the findings of this research, the results of Rezayi et al.'s research showed that empathy has a moderating effect on the relationship between moral judgment and moral behavior. In this research, 336 students of the eighth grade of Mashhad participated in the multi-stage cluster sampling method (35). The results of Naeimi Nezamabad et al.'s research showed that psychological well-being and personality traits have an effect on moral behavior (36).

Also, the results of Farhadi and Delfan Beiranvand's research on 285 students of Bu-Ali Sina University of Hamadan showed that moral behavior can be predicted based on educational styles and ego strength, considering

the mediating role of self-transcendence (4). The results of Delfan Beiranvand et al.'s research showed that the relationship among moral identity, moral attitude, situational benefit, and psychological benefit with moral behavior is positive and significant, and the relationship between situational cost and psychological cost with moral behavior was negative and significant. The results indicate that the situational benefit, moral attitude, situational cost, and moral identity were the most important predictors of moral behavior among teenagers. These variables could predict 0.25% of the variance of moral behavior (stepwise regression) (7).

In their research, Delfan Beiranvand and Bayat on 250 students of the secondary high schools of Hamadan city-Iran, showed that perceptions of social interaction significantly mediate between moral behavior and identity dimensions (11). Mohagheghi et al. showed that moral behavior can be predicted based on personality traits and moral intelligence, considering the mediating role of self-transcendence (5). In addition, Delfan Beiranvand and Bayat revealed that basic psychological needs significantly mediate the relationship between moral behavior and happiness (12). Based on the results of the previous research, factors such as situational benefit, moral attitude, situational cost, moral identity, educational styles, ego strength, identity dimensions, perception of social interaction, happiness, basic psychological needs, moral intelligence, and personality characteristics affect the occurrence of moral behaviors in social situations. The present study examined the mediating role of self-transcendence and fundamental values in the relationship between moral behavior, psychological well-being, and attitude to time.

Based on the results of this research, it can be said that when people believe in fundamental values and strive for the well-being of others in the community (self-transcendence), the background is provided for balance in situations, positive mood and life satisfaction, multidimensionality, personal optimization, and the emergence of pro-social behaviors.

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The possibility of performing moral behaviors expands in the community by individuals. Also, believing in values and otherness (going beyond oneself) makes positive people's attitudes towards different states of time (past, present, future). This positive attitude affects people's beliefs and behaviors. As a result, the probability of moral behavior by people in various social situations increases and is facilitated. Therefore, the facilitation of moral behavior by people is possible when fundamental values and self-transcendence are considered, along with psychological well-being and a positive attitude towards time.

Among the limitations of this research, the sample was limited to the students of Bu-Ali Sina University, the use of self-report instruments, and implementation in an academic context. These limitations limit the generalization of the results to other age groups in different educational contexts. Therefore, researchers must be careful in generalizing the results of this research. In future research, the role of moral emotions, especially shame, guilt, and moral pride, will be investigated as moderators of moral cognition and behavior.

## Conclusion

Based on the results of this research, it can be concluded that the variables of psychological well-being and attitude to time can predict moral behavior in different social situations, that belief in fundamental values (altruism, equality and social justice, honesty, responsibility, and self-responsibility) has been internalized by people and self-transcendence (lack of focus on self, and others) has been increased by them. According to the findings of this research, fundamental values and self-transcendence significantly mediate the relationship between moral behavior with attitude to time and psychological well-being.

## Acknowledgments

The authors thank the students of Bu-Ali Sina University who participated in this research. The authors declare no conflict of interest and no funding.



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