

Self-Compassion in Diabetic Patients: Relationships of Type-D Personality with Psychological Well-Being and Self-Care

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Abstract

Objective: This research investigated the mediating role of self-compassion in the relationship of type D personality with psychological well-being and self-care behaviors in patients with type 2 diabetes.

Method: The statistical population of this research included all patients with type 2 diabetes in the cities of Rasht and Rezvanshahr in 2020-2021. In this descriptive cross-sectional study, 368 patients were selected through purposive consecutive sampling. The participants completed the questionnaire of the summary of diabetes self-care activities (SDSCA), type D personality scale (DS-14), Ryff's scale of psychological well-being (RSPWB), and self-compassion scale – short form (SCS-SF). The data were analyzed using structural equation modeling (SEM) in AMOS-24. Bootstrapping analysis was carried out via Preacher and Hayes' (2008) macro to analyze the mediating relationships.

Results: According to the bootstrapping analysis, self-compassion significantly mediates the relationship of type D personality with psychological well-being and self-care behaviors (in all cases $p < 0.0001$). The coefficient of determination of the final model demonstrated that all exogenous and mediating variables could predict 89% of the psychological well-being changes and 87% of self-care behaviors.

Conclusion: Self-compassion can serve as a buffer and reduce the destructive effects of the type D personality on psychological well-being and self-care behaviors in diabetic patients. Thus, taking measures to train and strengthen self-compassion is essential in the psychological treatment of diabetic patients.

Keywords: Self-Compassion, Diabetes Mellitus-Type 2, Self-Care, Type D Personality, Psychological well-being.

Introduction

Diabetes is a heterogeneous metabolic disorder. Its main characteristic is the severe blood sugar increase, and also a carbohydrate, fat, and protein metabolism disorder, which leads to deficiencies in the release of insulin or its function. Diabetes is the most prevalent disease in the third millennium (Punthakee, Goldenberg, & Katz, 2018). The International Diabetes Federation (IDF) has

reported the prevalence of diabetic patients in Iran's adult population is about 9.5%, which is almost three times the world average, and 5,450,300 adults in Iran suffer from this disease (IDF, 2022).

Following the report by the International Diabetes Federation (IDF) in 2020, the annual diabetes-related expenditures amount to about 673 billion dollars, including the cost of treatment and the complications it causes. Besides, a major part of these treatment expenditures includes the treatment of type 2 diabetes. Hyperglycemia causes disruption and failure in the function of various organs, especially the eyes, kidneys, nerves, and cardiovascular system (Pazhuheshgar, Rajaei, Khoj Nezhad, & Biazin, 2019). This disease can

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lead to long-term complications such as reduced psychological health, failure to keep a proper diet and drug therapy follow-ups, an increase in mortality rate, and high healthcare expenditures (Samadzadeh, Salehi, Bani Jamali, & Ahadi, 2019). Most studies suggest that type 2 diabetes is associated with an increase in psychological symptoms and disorders like depression and anxiety (Whitworth et al., 2016). Moreover, this disease is the main cause of behavioral issues, plus psychological and social factors play a vital role in its management (Venkatesh Kumar, Aghili, Zaree, & Asghari, 2022; Nefs et al., 2015). On the other hand, the reduction of the capability of diabetic patients intensifies their psychological problems and traps them in a vicious circle. The patients' psychological reactions might even aggravate these problems (which negatively impact experiencing diabetes symptoms) (Mahmoud Alilu, Asbaghipour, Narimani, & Aghamohammadzadeh, 2014).

Following systematic studies over the past 25 years, psychological well-being is damaged in most diabetic patients (Massey et al., 2019). Previous research suggested that psychological well-being influences the management of diabetes and increases the quality of life of the patients. (Karimi Ali Abadi, Ahmadi, Khalilian, & Ganji, 2020; Shafiei & Nasiri, 2020). As a definition, Ryff has conceptualized psychological well-being as consisting of six dimensions: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Ryff & Keyes, 1995).

Davies (2015) demonstrated that on account of the problems imposed by diabetes (such as diet, activity limitations, invasive monitoring of blood glucose levels, daily insulin injections, chronic physical complications, hospitalization, and shorter life expectancy), diabetic children do not have proper emotional responses and experience lower levels of psychological well-being. The decrease in psychological well-being and increasing emergence

of psychological symptoms in each diabetic patient gradually increases the severity of their symptoms, and the patient experiences aggravate their physical conditions.

The psychological well-being structure has a relationship with the consequences of type 2 diabetes, controlling the blood glucose, and death rate. Psychological well-being increases self-efficacy and improves motivation concerning self-care behaviors (Massey et al., 2019). Diabetic patients are expected to control the major part of their diabetes. Management of their disease and self-care behaviors are the most vital requirements of the medical sciences in controlling diabetes, especially type 2 (Samadzadeh et al., 2019). Self-care behaviors by the patients and obtaining a positive and special attitude towards the self and their diseases are carried out consciously and inhibiting (Woodman, Ballard, Hewitt, & MacPherson, 2018), which includes the activities that each individual considers essential to preserve their life, health, and welfare and performs them. Self-care boosts the patient's ability to deal with their health problems effectively, enables them to make constructive health-related decisions, and increases the necessity to cooperate in the care and treatment of chronic diseases (Azizi, Arsalani, Mohammadi Shahbolaghi, Hosseinzadeh, & Rajab, 2017). Self-care in diabetes consists of a broad spectrum of activities such as testing the blood glucose, modifying the diet, exercising, taking medications on time, and examining feet, which requires a major change in the lifestyle (Khawaldeh, Al Hassan, & Froelicher, 2012). Investigations in Iran suggested that 83% of the patients with diabetes do not control their blood glucose, 92% of individuals do not follow their diet, 26% of individuals have no physical activities, 50% of the patients do not check for diabetic foot ulcer (Parham, Riahi, Jandaghi, & Darivandpour, 2012).

Sticking to self-care behaviors helps control

the disease more effectively. Per the studies, psychological problems negatively impact diabetic patients' self-care (Kazeminejad, Taghinejad, Borji, & Tarjoman, 2018). It was found that regulating blood glucose and self-care behaviors in patients with diabetes is pertinent to some personal characteristics (Mahmoud Alilu et al., 2014). Studies suggested that type D personality is associated with lower levels of blood glucose, self-efficacy, and self-care behaviors, as well as higher levels of perceived stress and psychological distress (Lin et al., 2020). Type D personality comprises two components of negative effects and social inhibition. Negative affect is specified with the tendency toward negative emotions. People with high negative affect are more inclined towards negative experiences (despite the situation). These people experience strong feelings of dysphoria, anxiety, and excitability. They have a negative view of self and scan the world for signs of impending trouble (Denollet, 2005).

Social inhibition is determined by the sustainable tendency to hinder emotional and behavioral experiences in social interactions. People with high social inhibition are more inclined to prevent the negative reactions of others through excessive control of self-expression (avoid asserting and specifying their beliefs and characteristics) (Emons, Meijer, and Denollet, 2007).

The association of negative effects with diabetes is one of the components of type D personality that aggravates the course and prognosis of the disease and leads to undesirable outcomes such as poor self-care behaviors in patients, poor blood glucose control, exacerbation of disease symptoms, higher mortality rates (Shaw et al., 2010). Pedersen et al. (2007), Choobgin, Ghaderin, Soleimani, and Akhundzadeh (2018), and Akbari, Dehghani, and Salehzadeh (2020) revealed that patients with type D personalities are more apt to behaviors that contradict their health (such as failure to practice self-care behaviors) including smoking, not

exercising, and following a poor diet.

Self-compassion is one of the factors pertinent to following the treatment through self-care behaviors (Afshari, 2018) and the psychological well-being of diabetic patients (Ferrari, Dal Cin, and Steele, 2017). Self-compassion means to care and be kind to self when facing hardship and perceived failures. This variable is defined as the quality of getting in touch with the pains and afflictions of the self and the feeling to help resolve the problems of the self. It is associated with positive psychological components such as altruism, kindness, and happiness. Self-compassion helps individuals preserve their health more effectively (Breines et al., 2014).

Ferrari, Dal Cin, and Steele (2017) demonstrated that self-compassion has a positive relationship with self-care behaviors. The studies revealed that self-compassion has a relationship with higher psychological well-being and resilience in Malaysian consultants (Voon et al., 2021) and mental and psychical well-being in students (Hall, Row, Wuensch, and Godley, 2013). In addition, the positive relationships of self-compassion with self-care have been mentioned in a variety of studies (Rahmani, Mansoubi Far, Seyrifi, & Ashayeri, 2020; Abdollahi, Taheri, & Alen, 2020; Miller, Lee, Niu, Grise-Owens, & Bode, 2019; Ventura et al., 2019; Abdollah Zadeh & Shadin, 2020; Kazemi, Ahadi, & Nejat, 2020; Baqeri et al., 2019; Ferrari Dal Cin, & Steel, 2017). The relationship between self-compassion and type D personality was confirmed in studies by Krieger, Altemstein, Baettig, Doerig, and Holtforth (2013), Breines et al. (2014) concerning the impact of self-compassion on the increase of positive affect and reduction of negative affect (components of type D personality). As mentioned, diabetes is associated with psychological distresses. Based on previous research, type-D personality is related to decreasing psychological well-being and self-care behaviors. However, self-compassion, according to its protective capacities, seems to be able to support

the patients. Accordingly, the basic question of this research is whether self-compassion plays a mediating role between the type D personality and patients' psychological well-being and self-care behaviors. In other words, it serves as a protection against the destructive effects of type D personality in patients. Figure 1 illustrates the purpose of the research. In this model, the variables of type D personality are regarded as exogenous, the self-compassion variable as a mediating variable, and psychological well-being and self-care behaviors variable as endogenous variables, also known as independent variables.

records. The research sample comprised 368 men and women with type 2 diabetes selected through purposive and consecutive methods from two centers (A. Simorgh Specialized Diabetes Clinic in Rasht, B. Medical Laboratory of Dr. gholamin in Rezvanshahr). The purposive sampling was carried out due to two reasons. First, the research was competent in encouraging the cooperation of specialists, studying patients' medical records and archives, and selecting the respective participants from the aforementioned centers. Second, the aforesaid centers are great medical references in the center and western Guilan, respectively. A broad spectrum of patients from any economic and social backgrounds appear at these centers

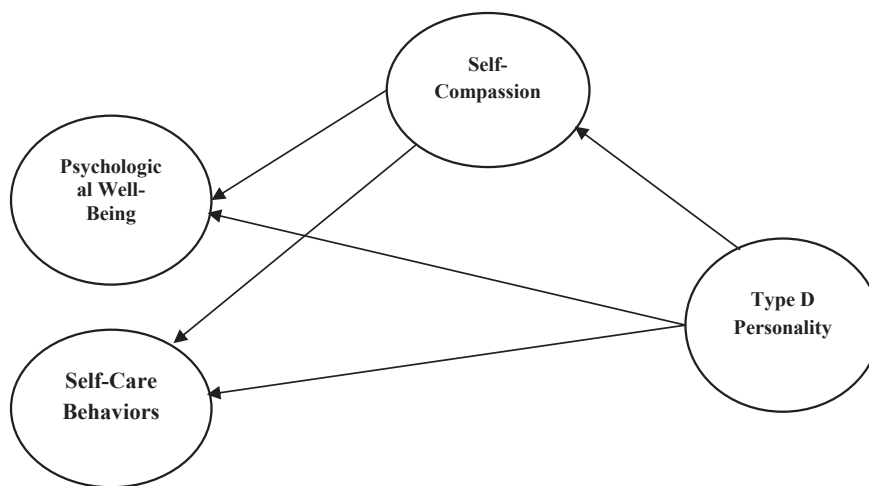


Figure 1: A conceptual model of the mediating role of self-compassion in the relationship of type D personality with physiological well-being and self-care behaviors in patients with type 2 diabetes

Method

The statistical population of this research included all women and men with type 2 diabetes in the cities of Rasht and Rezvanshahr in 2020-2021 who had an active medical record in the diabetes-related medical diagnosis and laboratory centers, and it has been more than six months since their medical record has been made. Each patient received the final diagnosis of type 2 diabetes from their internists, and the records confirming their diseases were available in their medical

including a desirable data bank that was required for this study. This research was carried out from March 2020 to February 2021. In the course of the research, by the inclusion and exclusion criteria, 368 patients were selected through nonprobability and consecutive sampling after obtaining their informed consent. At least 200 samples were required to use the structural equation modeling (SEM) technique (Kline, 2016).

Inclusion Criteria: Ability to read and write, age ranging from 40-70, diagnosed with type 2

diabetes by an internist at least six months before the study, availability of HbA1c tests conducted within less than three months for each patient which confirms their diabetes, and informed consent of participants.

Exclusion Criteria: Records of receiving consultation regarding their stress, unwillingness to complete the tests, simultaneous chronic physical diseases such as broken bones, brain stroke, multiple sclerosis (MS), epilepsy, and other physical and neurological disabling diseases (per records mentioned in the medical files), simultaneous chronic psychological diseases such as delusional disorder, schizophrenia, bipolar disorder (per records mentioned in the medical files), and patients unwillingness to participate in the research.

Measures

Summary of Diabetes Self-Care Activities (SDSCA) Questionnaire

The SDSCA was designed by Toobert and Glasgow (1994). This questionnaire comprises 15 questions that examine the quality of patients' self-care within seven days. The questions include following the diet (five questions), exercising (2 questions), controlling blood glucose (3 questions), carrying out foot care (4 questions), and smoking (question). The answers to this questionnaire are designed to help the patients to report the extent of their activities within one week. The responses vary from zero to seven days per week. A score of zero indicates a failure to carry out self-care behaviors within the past seven days, and a score of seven signifies carrying out self-care behaviors within the last seven days. The highest score in this questionnaire amounts to 105, which indicates the highest quality of self-care behaviors (Solhi, Hazrati, & Nejaddadgar, 2017). In their study, Zareban et al. (2014) obtained Cronbach's Alpha as 0.89%. Ghasemi, Namdari, Ghorehshian, and Amini (2010) confirmed the content validity and

reliability of internal consistency ($\alpha=0.77$) of this scale.

Type-D Personality Scale (DS-14)

The type D personality scale designed by Denollet includes 14 questions, 7 items measure the negative affect and 7 items measure the social inhibition (Denollet, 1998). It is specially designed to assess the negative affects (neuroticism) and social inhibition (introversion), and finally, to assess the type D personality through a stable, standard, and easy method for patients with physical problems. The questionnaire comprises two subscales titled negative affects and social inhibition to assess the general characteristics (negative affects (neuroticism and social inhibition) of type D personality. The responses of this scale include scarcely, sometimes, often, and always. The minimum and maximum scores are 14 and 56, respectively (Afkhani Ardakani et al., 2013). Obtaining high scores on this scale indicates higher levels of type D personality. Denollet reported the internal consistency of the negative affect subscale to 0.88 and the social inhibition subscale to 0.86 (Denollet, 1998). In their research, Fakhari, Norowzin, and Pezeshki (2014) reported Cronbach's alpha of 0.79 for negative affect, 0.56 for social inhibition, and 0.83 for the total scale. The reliability of the internal consistency of this scale in this research was obtained to be 0.791.

Ryff's Scales of Psychological Well-being (RSPWB)

This research used the 18-item RSPWB. The scale is a self-report tool, and its responses range from absolutely agree to absolutely disagree in a 6-point continuum (1 to 6). A higher score signifies better psychological well-being. Among all questions, 10 questions are scored directly and 8 questions are scored in reverse (Khanjani et al., 2014). The highest score signifies higher psychological well-being. In their research, Ryff and Singer (2006) obtained the test reliability from 0.72 to 0.89 for the well-being components (self-acceptance, positive relations with others, autonomy, purpose in life, personal

growth, and environmental mastery) through Cronbach's alpha. Bayani et al. (2008) conducted a study in which they obtained Ryff's psychological well-being to be 0.82 via test-retest. Besides, they obtained self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth scales to be 0.71, 0.77, 0.78, 0.77, 0.70, and 0.78, respectively. Karimi, Kavusian, Keramati, Arabzadeh, and Ramezani (2017) obtained Cronbach's alpha for the subscales of self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth to be 0.74, 0.81, 0.79, 0.72, 0.84, and 0.74, respectively. The reliability of the internal consistency of this scale in this research was obtained to be 0.722.

Self-Compassion Scale Short Form (SCS-SF)

The 12-item SCS-SF was designed by Raes, Pommier, Neff, and Van Gucht (2011). The long form of this scale was designed in 26 items in 2003. This scale SCS-SF comprises 6 double-faceted factors: Self-kindness, self-judgment, common humanity, the feeling of isolation, Mindfulness, and over-identification. This scale was scored based on a 5-point Likert scale, i.e., ranging from 1 to 5 (1=never, 2=almost never, 3=I don't know, 4=almost always, 5=always). The minimum and maximum scores are 12 and 60, respectively. Obtaining a higher score is an indication of higher self-compassion (Raes et al., 2011). Neff and Germer (2013) obtained Cronbach's alpha for this scale to be 0.86 in Taiwan and Thailand and 0.95 in America. Shahbazi, Rajabi, Maghami, and Jolodari (2015) conducted a study, in which Cronbach's alpha for the total score was obtained to be 0.91. In addition, Cronbach's alpha for the subscales of self-kindness, self-judgment, common humanity, feeling of isolation, Mindfulness, and over-identification were 0.83, 0.87, 0.91, 0.88, 0.92, and 0.77, respectively. Furthermore, Varaei et al. (2017) reported Cronbach's alpha to be 0.65 for the total scale. Mohammady, Borhani, and Roshanzadeh

(2016) carried out the research. The validity of this scale was calculated by 10 university instructors of Birjand University of Medical Sciences through the internal consistency coefficient (CVI) and the result was 0.83. The reliability of the internal consistency of SCS-SF in this research was obtained to be 0.845.

Procedure

Taking into account the inclusion and exclusion criteria, after carrying out the required cooperation with the experts of the admission unit of Simorgh Specialized Diabetes Clinic in Rasht, and the Medical Laboratory of Dr. Gholamhossein in Rezvanshahr. First, with the researcher's assistance, the questionnaire concerned with the demographic information was completed by patients who went to the respective centers, then, the principal questionnaires were handed over to the participants who met the criteria.

Ethical statement

At the beginning of the assessment, the objectives of the study and research methods were explained to the patients and their companions. They were ensured that the information would remain confidential. Then, they were reminded that in case they decided not to participate in the research, it would not influence the process of their treatment. It should be noted that the proposal for this research was investigated and approved by the Organizational Ethics Committee of Biomedical Research of the Islamic Azad University, Rasht Branch, bearing the code of IR.IAU.RASHT.REC.1400.002.

Results

A group of 368 patients with an average age of 56.01 ± 8.84 years in the age range of 40-70 years participated in this study. In terms of demographics, gender of 232 people (63%) was female, in terms of age group, 128 people (34.8%) were in the age range of 51-60 years, in terms of marital status, 270 people (73.4%) were married, in terms of education,

186 people (50.5%) had a diploma, 138 people (37.5%) were in middle school, 44 people (12%) had a university education. In terms of employment status, 182 people (49.5%) were housewives, 63 (17.1%) were retired, 8 people (2.1%) were unemployed, and 4 people (1.1%) were disabled; 156 people (42.4%) had a history of diabetes in the family. The glycosylated hemoglobin level of type 2 diabetic patients was 8.73 ± 1.94 and between 6.10 and 15. Table 1 shows the descriptive indicators of the research variables including mean and standard deviation.

significant relationship with self-compassion ($r=-0.796$), psychological well-being ($r=-0.747$), and self-care behaviors ($r=-0.688$) ($P<0.01$). Besides, self-compassion had a positive and significant relationship with psychological well-being ($r=0.760$) and self-care behaviors ($r=0.657$) ($P<0.01$).

This research employed the SEM technique to examine the fitting of the relationship. It is essential to investigate the presumptions of this statistical approach before applying it. Per Kline's (2016) suggestion, the univariate normality assumptions

Table 1. Descriptive indicators (mean and standard deviation) of the research variables in patients with type 2 diabetes (N=368)

	M $\pm$ SD	Min-MAX	Skeewness	Kurtosis
Type-D Personality	30.4011.57 $\pm$	5-53	-0.018	-1.060
Self-Compassion	41.517.72 $\pm$	24-56	-0.232	-1.123
Psychological Well-Being	75.487.27 $\pm$	59-101	0.465	0.074
Self-Care Activities	58.7711.60 $\pm$	34-87	0.201	-0.502

Table 2 provides the information about the Pearson correlation coefficient of type 2 personality with

were tested and confirmed by estimating the kurtosis and skewness of scores. Considering the range of

Table 2 matrix of correlation of type 2 personality with psychological well-being, self-care behaviors, and self-compassion

	1	2	3	4
1-Type-D Personality	-			
2-Self-Compassion	-0.796**	-		
3-Psychological Well-Being	-0.747**	0.760**	-	
4-Self-Care Activities	-0.688**	0.657**	0.648**	-

** $p<0.01$

psychological well-being, self-care behaviors, and self-compassion.

The results of the correlation matrix suggest that the type 2 personality has a negative and

tilt and elongation of variables in the ± 2 interval, the single-variable normality was confirmed. The Mardia standardized kurtosis coefficient and the critical ratio were used to examine the multivariable

normality. According to the proposal by Blunch (2012), scores below 5 for the critical ratio are regarded as a failure to violate the multivariate normality. In this research, the Mardia coefficient was obtained to be 3.482 and the critical ratio was obtained to be below 5. Therefore, the assumption of the multivariable normality is met. To investigate the absence of multivariable outlier data, the Mahalanobis d-squared method was examined. The level of significance below 0.05 is an indication of outlier data. About this method, 47 outlier data were identified. In addition, the assumption of the absence of multicollinearity was assessed via tolerance and VIF. In this analysis, there was no deviation from the multicollinearity in any of the amounts of the tolerance and VIF statistics

less than 0.4, including the observed variables (judging, independence, blood glucose control, insulin injection, intake of antidiabetic pills, and smoking) were eliminated. In the second step, the final model of the research was achieved by drawing a correlation between the errors. Per the results of the fitting indicators, the final model of the research enjoys a good fitting.

***Abbreviations:** RMSEA: Root Mean Square Error of Approximation; PCFI: Parsimonious Comparative Fit Index; GFI: Goodness of Fit Index; PNFI: Parsimonious Normed Fit Index; IFI: Incremental Fit Index; CFI: Comparative Fit Index. Fit indices: PNFI, PCFI (>.5), CFI, IFI, GFI (>.9), RMSEA (<0.05 good, 0.05-0.08 accept, 0.08-0.1 marginal), χ^2/df (<3 good, <5 acceptable) (Kline,

Table 3. The fitting indicators of the proposed, modified, and final model

Indices Models	χ^2	df	P-value	χ^2/df	RMSEA	PNFI	CFI	PCFI	IFI	GFI
Primary model	515.603	148	0.0001	3.384	0.088	0.737	0.888	0.769	0.889	0.838
Improved model	338.883	73	0.0001	4.642	0.107	0.718	0.916	0.735	0.916	0.853
Final Model	179.107	63	0.0001	2.842	0.075	0.647	0.952	.659	0.953	0.913

calculated for the research variables. Therefore, according to the investigation of the statistical presumptions, the SEM is an appropriate method to assess the fitting of a model. The maximum likelihood (ML) method was used to estimate the parameters.

Table 3 shows the results of the fitting indicators of the proposed and modified model concerning the total samples of type 2 diabetes patients. The fitting of the proposed model was examined before assessing the structural coefficients. The fitting of the proposed model was evaluated based on the introduced fit indicators. Given that the CMIN/DF was below five and RMSEA was below 0.1, the fitting of the proposed model is confirmed (Marsh & Rosh, 1999; Fabrigar, 1999). Afterward, to promote the model, in the first step, factor loads

2016).

Acceptable Values of Indicators

The indicator signifies the variance determined for the hidden endogenous variables. Cohen (1992), described the values, 0.26, 0.13, and 0.02 in the SEM as strong, moderate, and poor, respectively. The coefficient of determination of the psychological well-being and self-care behaviors in the modified structural model amounted to 0.890 and 0.870, respectively. Accordingly, it indicates that the exogenous and mediating variables, i.e., type D personality and self-compassion can predict 89% of psychological well-being changes and 87% of self-care behaviors in patients with type 2 diabetes, which is regarded as quite strong. Moreover, the coefficient of determination of self-compassion amounts to 84%, which is strong. Table 4 shows

the standardized path coefficients, and Figure 3 displays the final research model.

Following the estimated indicators, the results indicated the fitting of the structural relationship of type D personality with psychological well-being and self-care behaviors through the mediating role of self-compassion in patients with type 2 diabetes. Table 4 shows the results of the direct relations of research variables in the final model (modified). Table 4 shows the standardized coefficients of all

paths and critical amounts in the final model.

Table 5 shows the results of mediating relations using the bootstrapping test in Preacher and Hayes' (2008) MACRO program to test the mediating paths. There are two indirect or mediating paths in the final model (Figure 3). The bootstrapping technique was used to determine the significance of the mediating relation and

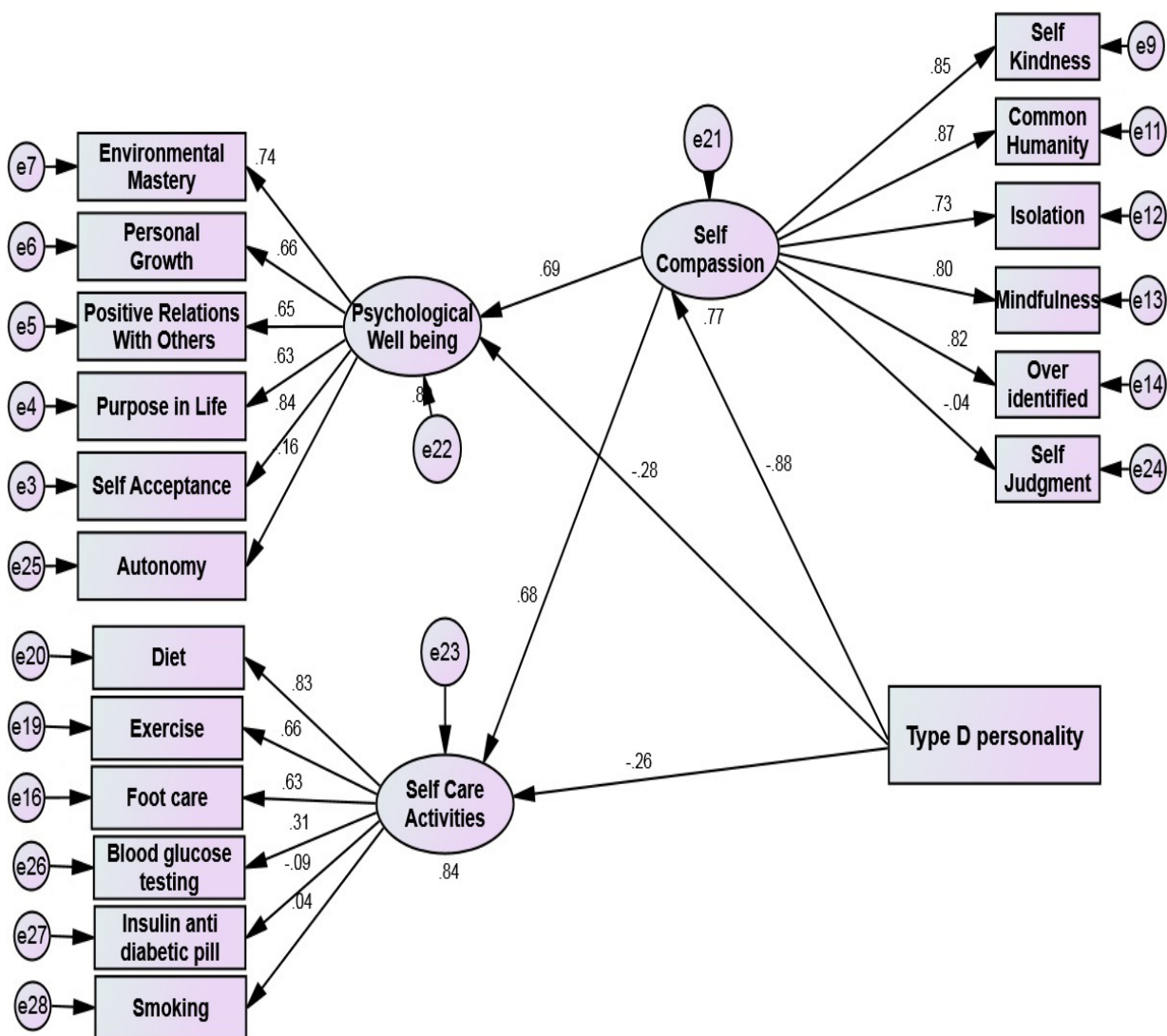


Figure 2. The standardized coefficients of the proposed model of the structural relationship of type D personality with psychological well-being and self-care behaviors through the mediating role of self-compassion in patients with type 2 diabetes

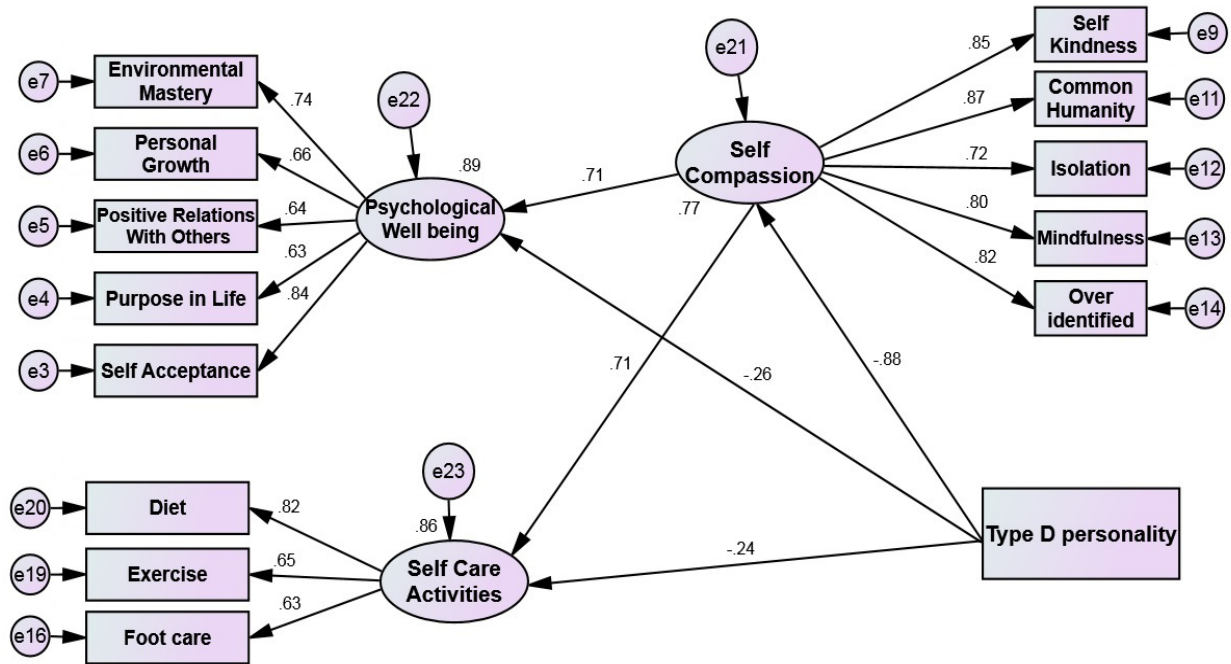


Figure 3. The standardized coefficients of the modified model of the structural relationship of type D personality with psychological well-being and self-care behaviors through mediating role of self-compassion in patients with type 2 diabetes

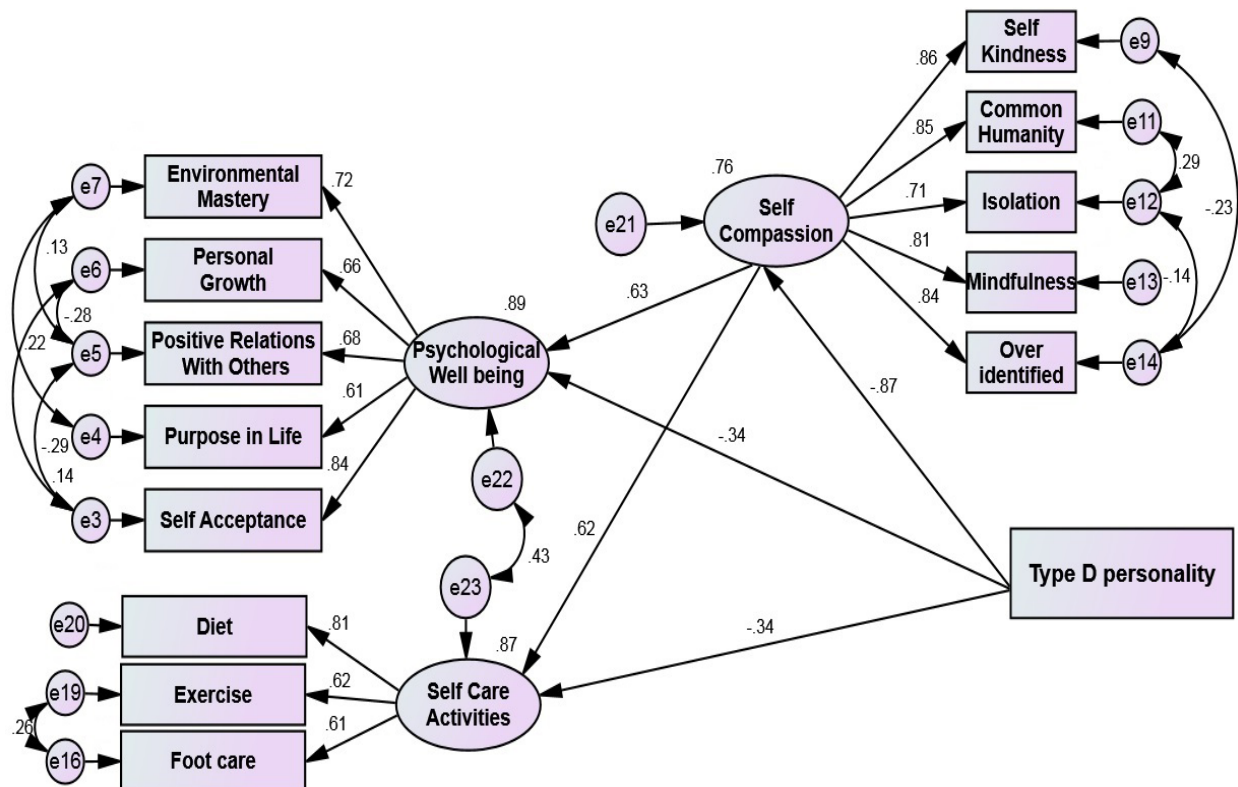


Figure 4. The standardized coefficients of the final model of the structural relationship of type D personality with psychological well-being and self-care behaviors through mediating role of self-compassion in patients with type 2 diabetes

Table 4. The standardized coefficients of paths of the final model (modified)

Path	Coeff	S.E.	C.R.	P-value
Type-D Personality → Self-Compassion	-0.871	0.004	-21.024	< 0.001
Type-D Personality → Psychological Well-Being	-0.342	0.011	-4.688	< 0.001
Type-D Personality → Self-Care Activities	-0.345	0.007	-3.607	< 0.001
Self-Compassion → Psychological Well-Being	0.628	0.113	7.820	< 0.001
Self-Compassion → Self-Care Activities	0.616	0.071	5.758	< 0.001

the indirect impact of the independent variable on the dependent variable through mediation. According to Table 5, zero is outside the confidence distance and is statistically significant. Therefore, self-compassion plays a mediating role in the relationship of type D personality with psychological well-being and self-care behavior. Thus, it deducts -0.3673 and -0.2864

patients. These results match the results of the study by Rezvani and Sajjadian (2018), and Varaee et al. (2017). For example, Rezvani and Sajadian (2018) found that self-compassion protects people against the influence of personality traits on positive psychological functions. Varaee et al.(2017) showed that self-compassion can help improve the psychological well-being of the elderly.

Table 5: Bootstrap Analysis Results in Preacher and Hayes (2008) macro program for indirect paths

Pasths	Data	Boot	Bias	SE	95%CI	
					Lower	Upper
Type-D Personality Self-Compassion Psychological Well-Being	-0.3671	-0.3673	-0.0002	0.0445	-0.4547	-0.2821
Type-D Personality Self-Compassion Self-Care Activities	-0.2861	-0.2864	-0.0003	0.0563	-0.3971	-0.1751

units, respectively, from the relationship of type D personality with psychological well-being and self-care behaviors.

Discussion

The results suggested that self-compassion plays a mediating role in the relationship between type D personality and psychological well-being. In other words, self-compassion reduces the destructive impacts of type D personality leading to the diminution of psychological well-being in diabetic

Accordingly, people with type D personality are inclined towards experiencing negative emotions such as sadness, anxiety, rage, and aggressive affects together with inhibiting these emotions when avoiding social touches, rather than positive emotions. Therefore, they are probably more susceptible to emotional problems such as anxiety and psychosomatic diseases (De Fruyt and Denollet, 2002). This can affect the mood and social relations of an individual and pave the way for the reduction of their psychological well-being. However, when

self-compassion is included in this relation, or when its levels are increased, the destructive effects of type D personality on psychological well-being are reduced. Self-compassion means to be open, kind, and become affected by personal pains, enjoy feelings of caring and kindness towards self, have a non-judgmental view towards failures and hardships, as well as to understand the fact that the personal experiences of every individual are a part of the common humanity. Thus, when personal characteristics are associated with the self-care affect, they can create an enormous impact and protect the individual against failures and hardships. Furthermore, self-compassion guarantees a free of judgment and reflective self-awareness. In that case, when an individual enjoys a high level of self-compassion, they have a reflective view towards affects, beliefs, attitudes, and needs of self. Thus, when faced with a difficult or stressful situation, they can resolve their problems by enjoying an accurate and proper understanding of the situation and by providing rational solutions based on their experiences and thoughts. Given that, they acquire additional capabilities when confronting similar problems.

Self-awareness caused by self-compassion is crucial since first, it is non-judgmental. Seeing that, when self-awareness is associated with judgment, it leads to rumination, which itself causes negative affect (that is a part of type D personality) including sadness, rage, and stress in individuals. Second, a person enjoying self-compassion can observe themselves without the fear of self-blaming, and it enables them to perceive and correct the maladaptive patterns of thoughts, affects, and behaviors in themselves. Correcting the maladaptive patterns of thoughts and inappropriate mental models can

protect individuals against mental damages (and reduce the burden of type D personality).

Some inappropriate mental models are the basis for diseases such as depression and stress. Thus, when these patterns are corrected, they can have a considerable impact on individuals' psychological health and happiness. Besides, positive thinking of an individual with self-compassion leads to their self-satisfaction, plus the adaptation skills associated with it helps preserve optimistic expectations in the future. An individual's capability to preserve difficult negative emotions in their non-judgmental awareness, without any suppression or denying the negative aspects of the personal experience can be an identification of self-compassion accompanied by positive affect (Rezvani and Sajjadian, 2018). Consequently, an individual with high self-compassion experiences more positive emotions and moods, as well as fewer negative emotions. Besides, their type D personality causes less destruction in their psychological well-being. Therefore, it can be argued that self-compassion can play a mediating role in the relationship between type D personality and psychological well-being.

Moreover, other results revealed that self-compassion plays a mediating role when it comes to the relationship between the type D personality and self-care behaviors. In other words, self-compassion reduces the destructive impacts of type D personality leading to the diminution of self-care behavior in diabetic patients. Self-compassion can serve as a mechanism that reduces the destructive impacts of type D personality on self-care behaviors. The fact that self-compassion leads to positive outcomes matches the findings of the previous studies. The studies by Abdollahi, Taheri, and Alen

(2020), Rahmani et al. (2020), Abdollahzadeh and Shadin (2020), Kazemi et al. (2020), Baqeri et al. (2019), Kelly et al. (2010), and Ferrari et al. (2017), demonstrated that self-compassion increases the self-care behaviors in individuals.

It signifies that tensions caused by type D personality can impact an individual's health through behavioral and physiological changes. People with high levels of tension display excessive inclination towards behaviors that increases the possibility of disease or injuries. For instance, these tensions increase smoking and alcohol abuse, at the same time, they decrease the tendency to do physical and sports exercises and result in harmful impacts on their diet. The studies found that individuals with type D personality are more inclined towards maladaptive health behaviors such as not exercising and following a poor diet. This increases the vulnerability of these individuals to diabetes and problems in regulating their blood pressure and glucose. It is believed that these physiological changes can eventually lead to resistance to insulin, and cause type 2 diabetes (Choobgin et al., 2018).

On account of their high social inhibition, individuals with type D personality become isolated and receive less social support (Pell et al., 2012). The isolation and inhibition can result in failure to practice healthy behaviors and finally, lead to a lack of self-care. However, when self-compassion is added to this relation, it can reduce the destructive impact of type D personality on self-care behaviors. Since these individuals will enjoy a positive and kind attitude towards themselves, have moderated and non-judgmental views regarding their limitations, and in general, display a higher level of flexibility in their evaluation of life. Self-compassion enables

an individual to experience positive affects about themselves since self-compassion is not based on ideal standards. In fact, self-compassion is utilizing a complete and integrated process associated with kindness, perception, understanding, and acceptance of common humanity. Thus, enjoying higher levels of self-compassion enables individuals to display higher tolerance and patients towards their problems and afflictions. Consequently, it influences their lifestyle (Neff et al., 2007). Besides, it increases a person's life satisfaction and improves their self-care behaviors, plus it leads to performing health behaviors to preserve their health. In fact, on account of its properties, self-compassion strengthens self-care behaviors, as well.

The limitations of this study include self-reported data collection tools, and patients might have estimated their problems higher or lower than what they actually are. In addition, generalizing the results of this research to groups besides the age range of 40-70 and people who do not suffer from type 2 diabetes should be carried out with caution. Taking into account that the component of self-compassion plays a vital role in the psychological health of diabetic patients, the psychologists and mental health experts working in hospitals and consultants in the educational and treatment centers are recommended to hold self-compassion-based educational interventions to reduce the emotional inhibition and negative affects of patients with type D personality. Accordingly, they can be a crucial step towards increasing the psychological well-being of patients.

Conclusion

According to the results of this study, self-

compassion plays a mediation role in the relationship of type D personality with psychological well-being and self-care behaviors of patients with type 2 diabetes. Self-compassion can operate as an effective buffer towards type D personality and reduce its destructive affects on the psychological well-being and self-care behaviors in diabetic patients. Thus, taking measures to train and strengthen self-compassion is an essential matter in the psychological treatment of patients with diabetes.

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