



Journal Website

**Article history:**

**Received 06 December 2024**

**Revised 02 January 2025**

**Accepted 21 January 2025**

**Published online 10 July 2025**

# International Journal of Education and Cognitive Sciences

Volume 6, Issue 3, pp 1-9



E-ISSN: 3041-8828

## The Role of Temperament and Character with the Mediating Effect of Perceived Deception in the Formation of Dark Tetrad Personality Traits

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### Article Info

**Article type:**

*Original Research*

**How to cite this article:**

Parsakia, Z., Zeinali, A. (2025). The Role of Temperament and Character with the Mediating Effect of Perceived Deception in the Formation of Dark Tetrad Personality Traits. *International Journal of Education and Cognitive Sciences*, 6(3), 1-9.

<https://doi.org/10.61838/kman.ijecs.6.3.17>



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### ABSTRACT

**Purpose:** The aim of research was determine the role of temperament and character with the mediating effect of perceived deception in formation of dark tetrad personality traits.

**Methodology:** The present research was cross-sectional from type of correlation. The statistical population was all managers of the government offices of Tabriz city in 2024 year with number of 8280 people and the sample size was determined 420 people, which were selected by available sampling method. Data were collected by temperament and character questionnaire, perceived deception scale and dark tetrad personality traits scale and were analyzed with using Pearson correlation coefficients and structural equation modeling methods in SPSS and Smart-PLS software.

**Findings:** The results showed that the model of temperament and character with the mediating effect of perceived deception in the formation of dark tetrad personality traits had a good fit. Also, the direct effect of temperament on perceived deception and dark tetrad personality traits was negative and significant, the direct effect of character on perceived deception was positive and significant and on dark tetrad personality traits was negative and significant and the direct effect of perceived deception on dark tetrad personality traits was positive and significant ( $P < 0.01$ ). In addition, the indirect effect of temperament and character with the mediating effect of perceived deception on dark tetrad personality traits was negative and significant ( $P < 0.01$ ).

**Conclusion:** According to results, in order to reduce the dark tetrad personality traits should be designed and implemented programs based on the temperament and character and perceived deception.

**Keywords:** *Temperament and Character, Perceived Deception, Dark Tetrad Personality Traits.*

## 1. Introduction

In recent years, research on dark personality traits has grown significantly, and this construct has been the subject of much research in the field of personality pathology (Boman, 2024). Personality is mainly dependent on one's culture (Jelodari & Kord Azizpour Mohammadi, 2023). Some personality psychologists have become interested in studying socially disruptive personality traits and dark personalities, which are associated with interpersonal problems and destructive behaviors such as aggression, deceitfulness and exploitation of others (Belanger et al., 2023). In the field of personality pathology models, the most important dark personalities include machiavellianism, narcissism, psychopathy and sadism, which are socially and interpersonally disturbing and unpleasant (Lassche et al., 2024). Machiavellianism refers to an intensely selfish orientation which a person is willing to achieve their goals by any means necessary, including deceitfulness, exploitation and fraud. Narcissism refers to exaggerated feelings of grandiosity, pride and self-absorption. Psychopathy refers to traits such as impulsivity, thrill-seeking, callousness, arrogance and interpersonal aggression. Sadism refers to the enjoyment of the physical, sexual and psychological suffering of others (Koehn et al., 2019). The dark tetrad personality traits is a new and integrated model from combines different personality theories to create and describe a socially undesirable personality with behavioral tendencies of self-centeredness, inconsistency, lack of honesty and humility, emotional coldness, aggression and deceitfulness (Pineda et al., 2022). These dark tetrad personality traits are not severe clinical disorders. In fact, they are milder forms of them and are below the clinical threshold; so that they are directly related to clinical problems and disorders (Tetreault & Sarma, 2024).

One of the factors associated with the dark tetrad personality traits is temperament and character (Sanatjou et al., 2023). The role of genetics and environment in shaping human personality is a fundamental question and each human being has an integrated hierarchy of biological, psychological, and social systems that allow him to adapt more flexibly to changes in the internal and external environment (Lu et al., 2020). Each person's personality is the result of the interaction of temperament (the biological and hereditary part, reflecting pre-existing predispositions to respond to emotions) and character (the environmental part, reflecting individual differences in goals, values and self-concepts) (Fountoulakis & Gonda, 2021). Temperament refers to individual differences in emotional responses that are stable and enduring throughout life and character reflects an individual's value system and self-conscious emotions that

are influenced by social learning throughout life (Schroder et al., 2022). In the other words, temperament is an individual's behavioral style that determines specific response methods and includes functional organization for activating, sustaining, and inhibiting behavior in response to certain stimuli, but character is rational perceptions about oneself, others and world that are formed under the influence of environmental factors in the personality structure (Eley et al., 2023). The temperament were includes four components of novelty seeking (behavioral activation in response to novelty and reward cues or removal of punishment), harm avoidance (behavioral inhibition in response to punishment cues or lack of reward), dependence reward (continuation of socially reinforced behavior) and persistence (continuation of behavior given the ecstasy of discontinuous reinforcement) and character were includes three components of self-directedness (awareness of oneself as an independent individual and the realization of life goals in a purposeful and responsible manner), cooperativeness (one's view of oneself as an inseparable part of society) and self-transcendence (a sense of oneself as an inseparable part of the world through a sense of self-forgetfulness and spiritual identification with something outside oneself) (Uygun et al., 2022).

One of the variables that can mediate between temperament and character with dark tetrad personality traits is the perceived deception, which refers to any distortion or concealment about reality with the aim of misleading others or promoting an incorrect belief or phenomenon (Rassin et al., 2024). In another definition, deception is a successful or unsuccessful intentional attempt to conceal, manipulate and falsify real information through verbal and nonverbal means to create, maintain and increase false beliefs in others (Roman et al., 2019). The environment which occurs the deception is an integral part of the deceptive context and how deceivers act and perceived deception cannot be separated from the environment and the communicative context (Wang et al., 2022). The perceived deception is one of the constructs examined in the study of dark personality traits and this construct causes a decrease in trust in deceivers and a decline of health, quality of life and life satisfaction (Markowitz, 2024).

Few studies have been conducted about the relationships between temperament and character, perceived deception and dark tetrad personality traits. For example, the research results of Sanatjou et al (2023) showed that there was a significant relationship between temperament and character with the dark tetrad personality traits dimensions in students. Javaezi Shishavan & Zeinali (2022) concluded in a study that temperament and character had a significant relationship with the dark tetrad personality traits of students and were able to significantly predict their dark tetrad personality

traits. In another study, [Ahmadi-Azar & Jahan \(2022\)](#) reported that temperament and character had a significant relationship with the three dark personality traits of students. Also, the research results of [Rassin et al \(2024\)](#) indicated that an increase in deception led to an increase in the dark tetrad personality traits including machiavellianism, narcissism, psychopathy and sadism. [Wissing & Reinhard \(2019\)](#) concluded in a study that there was a positive and significant relationship between perceived deception and the dark triad personality. In another study, [Shabahang et al \(2023\)](#) reported that deception was significantly correlated with the dark triad of personality including machiavellianism, narcissism and psychopathy. In addition, the research results of [Babkirk et al \(2015\)](#) showed that temperament had a significant relationship with deception.

Although a relatively large amount of research has been conducted on the dark tetrad personality traits, but these research have focused less on the role of temperament and character and perceived deception. As a result, little research has been conducted on the role of temperament and character and perceived deception in shaping the dark tetrad personality traits, and no research has been found in this field with the mediation of perceived deception. Accordingly, it is necessary to investigate the role of temperament and character with the mediating effect of perceived deception on the dark tetrad personality traits, so that if it plays an effective role, programs can be designed and implemented based on them to reduce the dark tetrad personality traits. Therefore, the present research was conducted with the aim of determining the role of temperament and character with the mediating effect of perceived deception in formation of dark tetrad personality traits.

## 2. Methods and Materials

### 2.1. Study Design and Participants

The present research was cross-sectional from type of correlation. The statistical population of this research was all managers of the government offices of Tabriz city in 2024 year with number of 8280 people and the sample size based on the Krejcie and Morgan table and according to the possible dropout was determined 420 people, which were selected by available sampling method. In this research there were 39 missing questionnaires and analyses were conducted for 381 individuals. As a result, the final sample of this study was 381 people. The inclusion criteria of these individuals were included age over 25 years, education higher than a diploma, no addiction and use of psychiatric drugs such as anti-anxiety and antidepressants, no stressful events such as divorce and death of relatives in the past three months and willingness to participate in the study. The exclusion criteria were included failure to respond to more than ten percent of the items, failure to complete the research

instruments after three follow-ups, and withdrawal from the study.

The research was conducted as follows: After reviewing the inclusion criteria for the study, 120 people were selected as a sample from among the managers of government departments in Tabriz city. The importance and necessity of the research were explained for them and assurances were given regarding compliance with ethical points, including confidentiality, privacy, etc. They were then asked to respond to all items of the research instruments with utmost care and to inform the researchers after completion for collection. Due to the managers' busy schedules, three follow-ups were conducted to complete the tools and after three follow-ups, questionnaires from 381 managers were selected for analysis. Finally, thanks and appreciation was extended to all managers who responded to the research tools.

### 2.2. Measures

The instruments used in this study included the following.

#### 2.2.1. Temperament and Character Questionnaire

This questionnaire was designed by [Cloninger \(1994\)](#) with 56 items in two sections of temperament and character. The temperament section were include four components of novelty seeking, harm avoidance, dependence reward and persistence and the character section were include three components of self-directedness, cooperativeness and self-transcendence; so that each component had eight items, and to answer each item was used a five-point Likert scale from 1 (completely false) to 5 (completely true). The range of scores for each component was between 8-40 and the range of scores for the temperament section was between 32-160 and the range of scores for the character section was between 24-120 and a higher score indicates a greater presence of that characteristic. [Cloninger \(1994\)](#) examined the construct validity of the instrument with using exploratory factor analysis and the results indicated that the factor loading was higher than 0.40 for all items and reported the reliability of the components with using Cronbach's alpha in the range of 0.65 to 0.83. In Iran, [Javaezi Shishavan & Zeinali \(2022\)](#) confirmed the content validity of the temperament and character questionnaire by 15 faculty members of Islamic Azad University and reported its reliability with using Cronbach's alpha for the temperament components including novelty seeking 0.82, harm avoidance 0.75, dependence reward 0.69 and persistence 0.66 and for the character components including self-directedness 0.83, cooperativeness 0.74 and self-transcendence 0.68. In the present study, the factor loading of all items was evaluated above 0.40, which indicated the appropriate validity of the temperament and character questionnaire and its reliability was calculated with using a mixed method as 0.80 for temperament and 0.84 for character.

### 2.2.2. Perceived Deception Scale

This scale was designed by [Chaouachi & Ben Rached \(2012\)](#) with 25 items in five components of perceived correctness, consequences, ethics, vulnerability and legal aspects; so that they had 9, 4, 7, 2 and 4 items, respectively, and was used a five-point Likert scale from 1 (completely disagree) to 5 (completely agree) to respond to each item. The range of scores for the components of perceived correctness, consequences, ethics, vulnerability and legal aspects was 9-45, 4-20, 7-35, 2-10 and 4-20, respectively and the range of its total scores was between 25-125 and a higher score indicates a greater presence of that characteristic. [Chaouachi & Ben Rached \(2012\)](#) examined and confirmed the construct validity of the instrument with using exploratory factor analysis and reported its reliability with using Cronbach's alpha as 0.83. In Iran, no research was found on its validity and reliability. In the present study, the factor loading of all items was evaluated above 0.40, which indicated the appropriate validity of the perceived deception scale and its reliability was calculated with using a mixed method as 0.88 for perceived deception.

### 2.2.3. Dark Tetrad Personality Traits Scale

This scale was designed by [Plouffe et al \(2017\)](#) with 36 items in four components of machiavellianism, narcissism, psychopathy and sadism; so that each component had 9 items and was used a five-point Likert scale from 1 (completely disagree) to 5 (completely agree) to respond to each item. The range of scores for each component was between 9-45 and the range of total scores was between 36-180, with a higher score indicating a greater presence of that

trait. [Plouffe et al \(2017\)](#) reported the divergent validity of the dark tetrad personality traits scale with the Honesty-Humility subscale of the HEXACO personality inventory-revised ([Lee & Ashton, 2024](#)) in the range of -0.41 to -0.59, which all of them were significant at a level smaller than 0.001 and reported the reliability of its components with using Cronbach's alpha in the range of 0.73 to 0.96. In Iran, [Javaezi Shishavan & Zeinali \(2022\)](#) confirmed the content validity of the dark tetrad personality traits scale with 15 faculty members of the Islamic Azad University and reported its reliability with using Cronbach's alpha for the components of machiavellianism 0.75, narcissism 0.81, psychopathy 0.78 and sadism 0.90 and for the entire scale 0.92. In the present study, the factor loading of all items was evaluated above 0.40, which indicated the appropriate validity of the dark tetrad personality traits scale and its reliability was calculated with using a mixed method as 0.75 for dark tetrad personality traits.

### 2.3. Data Analysis

The data of this research were analyzed with using the Pearson correlation coefficients and structural equation modeling methods in SPSS and Smart-PLS software.

## 3. Findings and Results

In the present research, due to the presence of 39 missing questionnaires, analyses were conducted for 381 managers of government offices of Tabriz city. The results of the number and percentage of their demographic information were reported in [Table 1](#).

**Table 1**

*Results of the number and percentage of demographic information of managers of government offices of Tabriz city*

Variable	Level	Number	percentage
Gender	Female	146	38.3
	Male	235	61.7
Marital Status	Single	100	26.2
	Married	281	73.8
Education Degree	Post Diploma	11	2.9
	Bachelor's	131	34.4
	Master,s	146	38.3
	PhD	93	24.4
Work Experience	1 to 10 years	46	12.1
	11 to 20 years	150	39.4
	21 to 30 years	185	48.6

According to the results of the above table, most of the managers in Tabriz city were male (61.7%), married (73.8%), had a master's education degree (38.3%) and had 21 to 30 years of work experience (48.6%). The results of the correlation coefficients of temperament and character,

perceived deception and dark tetrad personality traits of managers of government offices of Tabriz city were reported in [Table 2](#).

**Table 2**

*Results of the correlation coefficients of temperament and character, perceived deception and dark tetrad personality traits of managers of government offices of Tabriz city*

Variable	Temperament	Character	Perceived Deception	Dark Tetrad Personality Traits
Temperament	1			
Character	0.506**	1		
Perceived Deception	0.279**	0.204**	1	
Dark Tetrad Personality Traits	-0.507**	-0.365**	0.344**	1

\*\*P<0.01

According to the results of the above table, there was a significant correlation between temperament, character, perceived deception and the four dark personality traits in managers of Tabriz city. The results of the fitness indices the models of temperament and character with the mediating

effect of perceived deception in formation of dark tetrad personality traits of managers of government offices of Tabriz city were reported in Table 3.

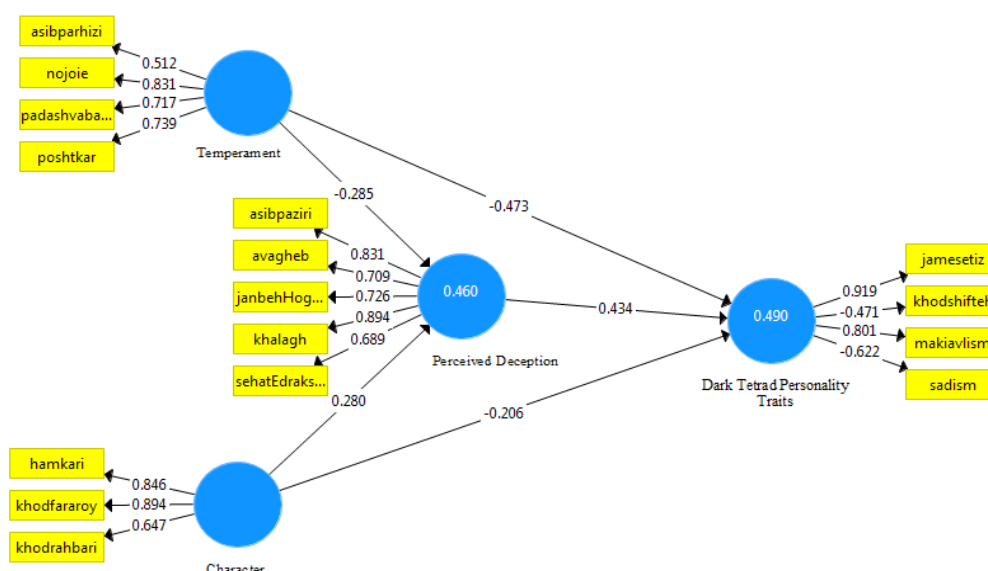
**Table 3**

*Results of the fitness indices the models of temperament and character with the mediating effect of perceived deception in formation of dark tetrad personality traits of managers of government offices of Tabriz city*

Variable	Coefficient of Determination
Perceived Deception	0.242
Dark Tetrad Personality Traits	0.743

According to the results of the above table, the model of temperament and character with the mediating effect of perceived deception in the formation of dark tetrad personality traits had a good fit. The results of structural equation modeling the models of temperament and character

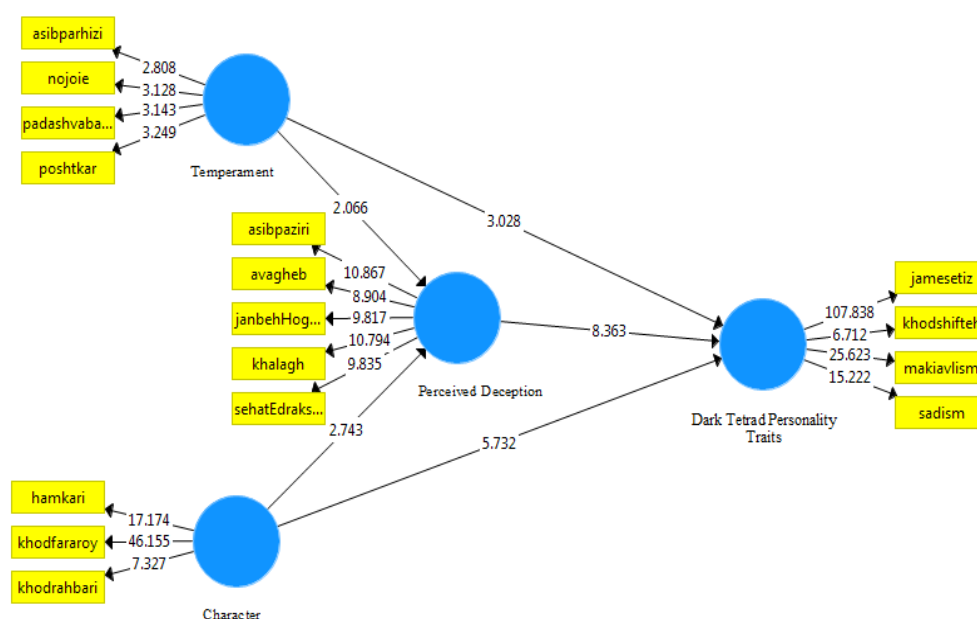
with the mediating effect of perceived deception in formation of dark tetrad personality traits of managers of government offices of Tabriz city were reported in Figures 1 and 2 and Table 4.



**Figure 1**

*Results of the standard coefficients the models of temperament and character with the mediating effect of perceived deception in formation of dark tetrad personality traits of managers of government offices of Tabriz city*




**Figure 2**

Results of T statistics the models of temperament and character with the mediating effect of perceived deception in formation of dark tetrad personality traits of managers of government offices of Tabriz city

**Table 3**

Results of the effects in the models of temperament and character with the mediating effect of perceived deception in formation of dark tetrad personality traits of managers of government offices of Tabriz city

Effect	Standard Coefficients	T Statistics	P-Value	Result
direct effect of temperament on perceived deception	-0.285	2.066	<0.01	Accept
direct effect of temperament on dark tetrad personality traits	-0.473	3.028	<0.01	Accept
direct effect of character on perceived deception	0.280	2.743	<0.01	Accept
direct effect of character on dark tetrad personality traits	-0.206	5.732	<0.01	Accept
direct effect of perceived deception on dark tetrad personality traits	0.434	8.363	<0.01	Accept
indirect effect of temperament with the mediating effect of perceived deception on dark tetrad personality traits	-0.123	2.325	<0.01	Accept
indirect effect of character with the mediating effect of perceived deception on dark tetrad personality traits	-0.121	2.487	<0.01	Accept

According to the results of the above table and figures, the direct effect of temperament on perceived deception and dark tetrad personality traits was negative and significant, the direct effect of character on perceived deception was positive and significant and on dark tetrad personality traits was negative and significant and the direct effect of perceived deception on dark tetrad personality traits was positive and significant ( $P < 0.01$ ). In addition, the indirect effect of temperament and character with the mediating

effect of perceived deception on dark tetrad personality traits was negative and significant ( $P < 0.01$ ).

#### 4. Discussion and Conclusion

Considering the importance of examining dark personality traits, the present research was conducted with the aim of determining the role of temperament and character with the mediating effect of perceived deception in formation of dark tetrad personality traits.

According to the results of this study, the direct effect of temperament on the perceived deception was negative and significant and the effect of character on the perceived deception was positive and significant, which was in some ways consistent with the results of Babkirk et al (2015). In explaining these findings can be said that temperament refers to automatic emotional responses that are hereditary and are relatively stable throughout life, but character refers to an individual's self-concepts, goals, values and experiences in life that are environmental and undergo change and evolution throughout life. In the other words, while temperament refers to differences in automatic emotional reactions and habits, character refers to individual differences in self-concepts related to goals and values. Since the perceived deception refers to any distortion or concealment about reality with the aim of misleading others or promoting an incorrect belief or phenomenon. Perceived deception is a successful or unsuccessful intentional attempt to conceal, manipulate and falsify real information through verbal and nonverbal means in order to create, maintain and increase false beliefs in others. Therefore, it seems logical that the effect of temperament on perceived deception should be negative and significant and the effect of character on it should be positive and significant.

According to other results of this study, the direct effect of temperament and character on the dark tetrad personality traits was negative and significant, which was consistent with the results of studies by Sanatjou et al (2023), Javaezi Shishavan & Zeinali (2022) and Ahmadi-Azar & Jahan (2021). In explaining these findings can be said that temperament is the hereditary basis of emotions and learning that is acquired through emotional and automatic behaviors and character refers to self-concepts, self-images and individual differences in experiences. Therefore, temperament is an individual's behavioral style that determines his or her specific response methods and includes functional organization for activating, sustaining and inhibiting behavior in response to certain stimuli, which is created under the influence of hereditary factors in the individual's structure and character refers to rational perceptions about oneself, others and world, which are created under the influence of environmental factors in the individual's structure. Since dark tetrad personality traits are directly related to clinical problems and disorders and are considered by others to be dark and sinister traits that cause trouble for the individual, others and the environment. These dark traits are socially undesirable and undesirable characteristics that lead to undesirable consequences. Therefore, it seems logical that the effect of temperament and character on dark tetrad personality traits should be negative and significant.

Also, according to the results of this study, the direct effect of perceived deception on the dark tetrad personality traits was positive and significant, which was consistent with the results of studies by Rassin et al (2024), Wissing & Reinhard (2019) and Shabahang et al (2023). In explaining these findings can be said that the perceived deception is any distortion or concealment of reality with the aim of misleading others or promoting an incorrect belief or phenomenon. The environment in which deception occurs is an integral part of the deceptive context and how deceivers act and perceived deception cannot be separated from the environment and the communicative context. As a result, perceived deception is one of the constructs examined in the study of dark personality traits and this construct causes a decrease in trust in deceivers and a decrease in health, quality of life and life satisfaction. Since the dark tetrad personality traits have common characteristics such as inconsistency, callousness, deceitfulness, self-centeredness, lack of honesty and humility and a tendency to exploit. These traits clinically lead to significant distress and impairment in occupational and social functioning and provide the basis for many psychological and personality problems. Therefore, it seems logical that the effect of perceived deception on dark tetrad personality traits should be positive and significant.

In addition, according to the results of this study, the indirect effect of temperament and character with the mediating effect of perceived deception in formation of dark tetrad personality traits was negative and significant. No research was found on the mediation of perceived deception between temperament and character and dark tetrad personality traits, but in explaining these findings can be said that the effect of temperament and character on the dark tetrad personality traits occurs through cognitive and motivational mechanisms. Since the perceived deception is a deliberate attempt to conceal, manipulate and falsify real information through verbal and nonverbal means to create, maintain and increase false beliefs in others and its goal is to mislead others or promote an incorrect belief or phenomenon. Therefore, it seems logical that the perceived deception is a suitable mediator between temperament and character and dark tetrad personality traits and the indirect effect of temperament and character with the mediating effect of perceived deception on dark tetrad personality traits is negative and significant.

The limitations of this study include the use of self-report instruments, the use of available sampling method and the lack or low cooperation of some managers of the government offices of Tabriz city who did not respond satisfactorily to the research instruments even after three follow-ups. Therefore, it is recommended to use random sampling methods to select samples. Another research

proposal is to investigate the role of temperament and character in formation the dark tetrad personality traits with the mediating effect of other variables such as alexithymia, anxiety, obsession, etc. In general, the results of this study indicated the effective role of temperament and character in formation the dark tetrad personality traits alone and with the mediating effect of perceived deception in managers. According to the results of present research, in order to reduce the dark tetrad personality traits should be designed and implemented programs based on the temperament and character and perceived deception.

### Authors' Contributions

All authors significantly contributed to this study.

### Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

### Acknowledgments

The authors thank the managers of government offices of Tabriz city for completing the instruments and participating in the research.

### Declaration of Interest

In this study, there were no conflicts of interest between the authors.

### Funding

According to the authors, this article has no financial support.

### Ethical Considerations

In this study, which had an ethics code with the ID of IR.IAU.URMIA.REC.1403.170, the importance and necessity of the research were explained to the samples and they were assured of observing ethical guidelines.

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