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Predicting the Tendency Towards Divorce in Couples Involved in Infidelity Based on Marital Intimacy and Satisfaction with the Mediation of Ethical Orientation Styles

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ABSTRACT

Objective: This study aimed to predict the tendency towards divorce in couples involved in infidelity based on marital intimacy and satisfaction, mediated by ethical orientation styles.

Method: The research method was correlational, involving a statistical population of couples seeking counseling in districts one and two of Tehran in 2021. The sample size was 250 individuals of both genders, selected through random quota sampling. Data collection tools included: the Tendency Towards Divorce Scale by Rusbult, Johnson, & Morrow (1986), the Infidelity Scale by Yeni Seri & Kokdemir (2006), the Marital Intimacy Scale by Bagarozzi (2001), the Marital Satisfaction Scale by Enrich (1995), and the Ethical Orientation Styles Scale by Haidt & Graham (2007). Data analysis methods used descriptive statistics, structural equation modeling, and PLS3 SMART software.

Findings: The results indicated that there was a negative relationship between marital intimacy and the tendency towards divorce among couples involved in infidelity. There was also a negative relationship between marital satisfaction and the tendency towards divorce in these couples. Marital intimacy and satisfaction could predict the tendency towards divorce mediated by ethical orientation styles. Additionally, there was a significant positive relationship between marital satisfaction and intimacy with ethical orientation styles, with ethical orientation styles mediating the relationship between these variables and the tendency towards divorce.

Conclusions: This relationship intensifies when mediated by ethical orientation styles. Thus, with an increase in marital satisfaction, the tendency towards divorce due to infidelity decreases. This justifies the use of interventionist approaches to strengthen marital satisfaction to reduce the tendency towards divorce due to infidelity.

Keywords: Marital intimacy, Attachment style, Early maladaptive schema, Love style.

1. Introduction

he tendency towards divorce in infidelity is a nonconstructive and destructive variable that endangers relationship between couples, causing their the communication pattern to become harmful. This tendency represents a desire in one of the spouses in a marital relationship to seek divorce due to infidelity by the other spouse (Agboola & Ojo, 2022; Isa-Najad & Bagheri, 2017; Isma & Turnip, 2019). Infidelity, for any reason, disrupts the relations between couples and the stability of the family (González et al., 2019). On the other hand, adherence to ethical styles in relationships between couples prevents the emergence of a tendency towards divorce in cases of infidelity (Pichon et al., 2020). The lived experiences of couples have shown that reasons such as the presence of satisfaction and intimacy in marriage are due to the existence of ethical orientation styles (Shokri et al., 2021). Predicting the tendency towards divorce in infidelity is a process that examines factors that cause or inhibit this inclination. In this study, the variables of marital satisfaction and marital intimacy are examined as input variables, and ethical orientation styles are considered as a mediating variable.

Moreover, adherence to ethical orientations will play a constructive role in stabilizing marital life and ensuring marital satisfaction (ÇElİK et al., 2022). It is observed how the governance of ethical orientation in the relationships of couples can positively affect the stability and persistence of their relationship while also preventing the tendency towards divorce due to infidelity (Pichon et al., 2020).

Some clinical studies have shown that couples who were unaware of ethical styles and did not prioritize adherence to them have experienced unpleasant experiences such as infidelity and disenchantment (Kazemi & Zanganeh, 2021). The institution of the family becomes stable only when the relationships between couples are characterized by peace, stability, intimacy, and satisfaction, and the amalgamation of these positive conditions is not possible unless the relationship between the couples is covered by ethical orientation styles (Luk & Loke, 2019). Therefore, ethical orientation styles can play a mediating role between marital satisfaction and the tendency towards divorce in cases of infidelity (Alizadehfard & Razaghi, 2021). Based on this, some studies in the field of psychology have referred to the mediating role of "extrinsic" ethical orientation (Moradi et al., 2020). On the other hand, variables such as marital disenchantment, marital commitment, intimacy, and marital satisfaction will be examined as intrinsic variables. Also, the

tendency towards divorce in cases of infidelity is considered a criterion variable. In this study, when the variables are organized in the manner mentioned, they form a model that constitutes the framework of this research. Therefore, in this research, the prediction of the tendency towards divorce in couples involved in infidelity is examined based on four intrinsic variables and the mediating variable of extrinsic ethical orientation styles.

Commitment among couples provides opportunities for them to flexibly respond to each other's demands (Sayadi et al., 2017). Subsequently, the continuation of marital commitment results in a warm and intimate relationship that leads to marital satisfaction. Intimacy is a type of positive emotion based on the close relationship between couples and their reciprocal communication and attachment (Bagarozzi, 2001). Variables of marital commitment, satisfaction, and intimacy have an intrinsic relationship with each other, collectively enhancing positive and constructive emotions in couples in such a way that it strengthens the emotional, verbal, sexual connection, and the manifestation of tangible feelings of contentment with lived experiences (Parsakia et al., 2023; Parsakia & Rostami, 2023). In such a state, the outcomes indicative of a genuine and evolved marriage experience, which reflect the overall quality of marital relationships, are established (Mansouri et al., 2020; Zeheiri et al., 2020). It has even been stated that creating such conditions in relationships between couples has prevented negative emotions such as stress and marital disenchantment (Grover & Helliwell, 2019). Moreover, if marital commitment is added to such foundations, it enhances the loyalty of couples, ensuring the stability of their relationships (Mahmoudpour et al., 2020).

One of the lived experiences of couples involved in infidelity has been their excessive use of social networks, which has faded their emotional connection and severely reduced the intimacy between the couples, thereby facilitating infidelity in the spouse (Roslina Che et al., 2021). It is evident that after the occurrence of infidelity by the spouse, the dimensions of the tendency towards divorce become apparent at cognitive, emotional, and behavioral levels. While if marital commitment prevails in the relationships between couples, the conditions for the emergence of the tendency towards divorce due to infidelity do not arise (Agboola & Ojo, 2022). Research has shown that marital commitment is a primary factor in maintaining marital relationships, in such a way that it enhances the intimate relationship between couples, as well as their satisfaction and the cohesion among them, thereby



strengthening their psychological peace and security (Alizadehfard & Razaghi, 2021).

Conversely, if infidelity is experienced in the relationships between couples, it creates conditions for mistrust, competition, jealousy, emotional abandonment, and the tendency towards divorce (Bakhtyari et al., 2021; Bayat et al., 2022; Brewer et al., 2015). Regardless of the different definitions and standards of marital infidelity across various societies and cultures, what is certain is that the occurrence of infidelity is recognized as an unethical, inappropriate rule that disrupts the norms in relationships between couples, families, and society (Goodarzi, 2019). Variables such as marital commitment, satisfaction, and intimacy have a positive and constructive role in the relationships between couples, which if linked with ethical styles, will have an intrinsic and synergistic relationship that will play a role in preventing the tendency towards divorce due to infidelity (El-Kassem et al., 2023).

Ethical psychologists believe that adherence to one of the ethical foundations such as fairness, care, loyalty, respect, and sanctity can guarantee the stability of relationships between couples (Haidt & Graham, 2007). Thus, to the extent that ethical stabilizing factors solidify the relationships between couples, disruptive factors can cause the emergence of the tendency towards divorce due to infidelity (Graham et al., 2011). This is where the findings of structured research studies can examine the occurrence of the tendency towards divorce due to infidelity through the prediction of various variables. Given the conceptual model considered in this research, which was not observable in the research background, this study aimed to directly and indirectly examine the relationship between variables of marital disenchantment, marital commitment, intimacy, and marital satisfaction with the variable of the tendency towards divorce due to infidelity mediated by ethical orientation styles. This study has become significant in that it can provide its practical findings to counselors, psychologists, clinical practitioners, and even couples who have experienced the tendency towards divorce due to infidelity, so that each of them, while preventing the occurrence of family breakdown and the emergence of irreparable spiritual damages, can revitalize damaged couples to return to a balanced and stable family life. Therefore, the implementation of this research has been prioritized both in terms of the research gap and in terms of thematic and social needs, making its execution necessary.

In the background of this research, there have been findings and results that have been aligned with the research

topic and the relationships of the variables proposed in the hypotheses, and here some of them are discussed. Eskandari & Prandin (2021) in their research reported that marital intimacy and marital satisfaction predict the tendency towards divorce in couples involved in infidelity . Bakhtiari & Hosseini (2021) in their results stated that there was a significant inverse relationship between marital intimacy and the tendency towards divorce due to infidelity (Bakhtyari et al., 2021). This result was also reported in the research by Salemi & Ayubi (2021). Yahyaei Rad & Salimi (2020) reported that when marital satisfaction in couples is enhanced, it prevents or reduces the tendency towards divorce due to infidelity, thus an inverse relationship exists between them (Salemi et al., 2022). Moradi, Kakabaraei & Afsharinia (2020) reported that couples who followed one of the ethical orientation styles in their relationships had prevented the emergence and tendency towards divorce due to infidelity (Moradi et al., 2020). Katafiasz (2021) in their research writes: Infidelity is considered an unethical behavior regardless of the reason one of the spouses commits such an act, the tendency towards divorce forms in the other party and dissatisfaction and lack of intimacy become evident in their relationships one after another (Katafiasz et al., 2020). Flores & Silva (2021) in the results of their research reported that couples who had an ethical framework in their relationships with each other and remained faithful to their commitments and contracts had prevented the tendency towards divorce due to infidelity and had never experienced it (Flores & Silva, 2021). McDaniel (2018) writes: The two variables of marital satisfaction and ethical styles when persisting in couples act synergistically, preventing or reducing the tendency towards divorce due to infidelity (McDaniel et al., 2017). Previous findings were also testify that the variables of marital satisfaction and marital intimacy in researches that were considered as output variables had an inverse relationship with the tendency towards divorce due to infidelity (Grøntvedt et al., 2020). In researches where ethical orientation style was considered as a mediating variable, this relationship was intensified. In fact, the ethical orientation style also had an intensifying role. Given the existing evidence and the relationships that have existed between these variables, this research aimed to predict the tendency towards divorce in couples involved in infidelity based on marital intimacy and marital satisfaction mediated by ethical orientation styles in couples.

2. Methods



2.1. Study design and Participant

This study is a correlational study in terms of implementation and an applied research in terms of purpose. The population consisted of all clients who sought family counseling in districts one and two of Tehran in 2021 and had experiences related to the inclination towards divorce due to infidelity, within the age range of 20-55 years. According to the database of the Association of Psychiatrists, this population numbered 1425 individuals.

Given that the population in this study was dispersed and distributed among counseling centers in district one of Tehran, random quota sampling was employed. Initially, 12 counseling centers were randomly selected from a list of centers in the area, then visits were made to the selected centers, and the required number of individuals was chosen based on sample size. It is noteworthy that the 12 counseling centers were selected from both private and public sectors, such as the judicial family counseling centers. This study aimed for the sample selection of individuals with a tendency towards divorce due to infidelity to be distributed across the community to represent it. The minimum sample size was determined to be 235, appropriate for structural equation modeling. To ensure better representation of the sample in the population, it was increased to 250 individuals to provide a broader coverage of observations.

2.2. Measures

2.2.1. Marital Satisfaction

Originally designed by Enrich in 1995, this scale initially had 115 items, but was later normed in Iran by Soleimanian & Navabinejad (1994), and a shortened version with 47 items was developed and published. The scale's measures are structured on a five-point Likert scale from strongly agree with a low value (5) to strongly disagree with a low value (1). The questionnaire appendix explains the score analysis method, providing a t-score table for score interpretation and analysis. Scores below 30 indicate severe dissatisfaction, scores from 30 to 40 indicate dissatisfaction, scores from 41 to 60 indicate relative satisfaction, scores from 61 to 70 indicate high satisfaction, and scores above 70 indicate exceptional marital satisfaction. The validity of this scale was calculated through Richardson's correlation, achieving an absolute of 0.81, and its reliability after implementation in a small group and calculating Cronbach's alpha was 0.95 (Besharat et al., 2021; Shokri et al., 2021).

2.2.2. Marital Intimacy

Designed and implemented by Bagarozzi (2001), this tool initially had 12 scales and 85 items, but a shortened form was designed and implemented in 2015 in Iran, and also used in research by Mokhles, Fatahi, & Shafi Abadi (2021). The content of this tool includes 25 items across five scales. Each of the scales follows a range from 1 to 25. The item measures are formed from a five-point Likert scale from very low (1) to very high (5). The total scale range is 1-125. To interpret the scores, five levels are considered as follows: scores from 1-25 indicate very weak intimacy, scores from 26-50 indicate weak intimacy, scores from 51-75 indicate moderate intimacy, scores from 76-100 indicate good intimacy, and scores from 101-125 indicate very good intimacy. As scores increase, so does the level of intimacy. The appendix to the questionnaire describes the validity and reliability reporting, with factor analysis used for validity and each parameter achieving a coefficient above 0.70. For reliability, Cronbach's alpha testing yielded coefficients for emotional (0.752), psychological (0.779), rational (0.767), sexual (0.769), aesthetic (0.713), and overall questionnaire (0.896). In Iran, this scale has been implemented multiple times and in referenced research, validity and reliability with coefficients above 0.70 have been reported (Bagarozzi, 2001).

2.2.3. Ethical Orientation Styles

Designed by Haidt & Graham (2007), this scale consists of 32 items. Its sub-scales include: 1- Care-Harm, 2-Fairness, 3- Loyalty to Group, 4- Respect for Authority, 5-Purity. The measures of this scale are on a six-point range from absolutely none (0) to very high (5). The scale has a score range of 1-160. For score interpretation, five levels are considered. Scores from 1-32 indicate very weak ethical orientation, scores from 33-64 indicate weak ethical orientation, scores from 65-96 indicate moderate ethical orientation, scores from 97-128 indicate good ethical orientation, and scores from 129-160 indicate very good ethical orientation. As the level of scores increases, so does the level of ethical orientation. The validity and reliability stages of the questionnaire were followed up in Iran in a group of 250 individuals with an average age of 34 years, achieving an absolute 0.75 for validity. In the Cronbach's alpha test, reliability coefficients were obtained as follows: Care and Harm (0.69), Fairness and Impartiality (0.65), Loyalty to Group (0.71), Respect for Authority (0.74), Sincerity and Purity (0.73), and overall questionnaire (0.84).



Additionally, the questionnaire appendix includes conceptual definitions of ethics and its sources (Haidt & Graham, 2007; Moradi et al., 2020).

2.2.4. Divorce Inclination

First designed by Rusbult, Johnson & Morrow (1986), it comprises 14 items with four sub-scales: inclination to divorce, inclination to forgive, expression of emotions, and loyalty dimension. Each of the four dimensions includes seven measures. The measures of this scale follow a sevenpoint graduated scale from never (1) to always (7). The score range of this scale is 1-98. The interpretation of scores is assessed in seven levels. Scores from 1-14 are interpreted as an unacceptable or excusable inclination to divorce. Scores from 15-28 indicate a very weak inclination to divorce, scores from 29-42 indicate a weak inclination, scores from 43-56 indicate a moderate inclination, scores from 57-70 indicate an acceptable level, scores from 71-84 indicate a very high level, and scores from 85-95 indicate a critical level of inclination to divorce. As the level of scores increases, so does the intensity of the inclination to divorce. The validity stages of this scale were followed up through factor analysis, achieving an absolute above 0.70 for the constituent factors. To ensure reliability, the scale was implemented in a group of 40 couples, yielding these coefficients: inclination to divorce 0.89, expression of emotions 0.90, loyalty 0.86, forgiveness 0.72, and overall scale 0.88. Additionally, the appendix of this scale describes the method of score interpretation (Fardad et al., 2021; Rusbult et al., 1986).

2.2.5. Marital Infidelity

Designed by Yeni Seri & Kokdemir (2006), this scale consists of 24 items. The measures of this scale follow a five-point Likert scale from strongly agree with a low value (5) to strongly disagree with a low value (1). The score range of this scale is 1-120. For interpreting the scores obtained by respondents, five different ranges are considered as follows: scores from 1-24 indicate very weak infidelity, scores from 25-48 indicate weak infidelity, scores from 73-96 indicate high infidelity, and scores from 97-120 indicate very high severe infidelity. Thus, as the level of scores increases, so does the level of infidelity. In terms of validity and 0.82 for

reliability were achieved. In Iran, this scale has been normed and implemented in a group of 400 students by Karimi et al. (2019), achieving a correlation coefficient of 0.81 through split-half reliability. Reliability coefficients for the subscales are reported as follows: Legitimacy 0.79, Seduction 0.75, Normalization 0.74, Sexual Desires 0.79, Social Context 0.71, Thrill-Seeking 0.79, and overall questionnaire 0.91. The appendix of this scale describes the method of data analysis and the sources used.

2.3. Data Analysis

As the collected data in this research were quantitative, descriptive statistical indices such as frequency, percentage, mean, standard deviation, and variance were initially used for analysis. In the inferential statistics section, multivariate regression statistics and structural equation path analysis were utilized. The conceptual model of this research was designed in such a way that initially, the relationship of variables with one another needed to be clarified, after which the predictive variables were tested based on the variable of inclination to divorce due to infidelity mediated by ethical orientation styles. For this reason, SPSS software was initially used for descriptive analysis, followed by the use of PLS software for testing the research hypotheses. Additionally, in studies following a conceptual model, simultaneous hypothesis testing is performed to test the conceptual model and elucidate the indirect relationships of variables, then retesting the direct relationships of predictive variables with mediating and criterion variables is conducted. Therefore, the final test in line with explaining the main hypothesis of the research is carried out. In this research, the process of conducting inferential tests, as mentioned, was implemented, assessing the intrinsic relationships of predictive variables with the mediating variable, as well as the extrinsic relationship of the mediating variable with the criterion variable of inclination to divorce due to infidelity.

3. Findings and Results

Of the sample studied, 168 individuals were male (67.2%) and 82 were female (32.8%). Most of the sample were aged between 41 and 50 years (42%), and the majority held a bachelor's degree (48%). Additionally, 40.4% of the participants had a marriage history of 21 to 30 years.



Table 1

Descriptive Statistics for the Study Variables

Components	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Tendency to divorce involved in breach of contract	38	79	44.63	15.20	-0.053	-1.115
Marital intimacy	38	112	86.65	20.93	-0.537	-0.782
Marital Satisfaction	79	203	155.40	41.93	-0.595	-1.094
Moral orientation styles	59	121	112.52	10.47	-1.838	1.387

Table 1 presents the descriptive statistics for scores related to the variables of inclination towards divorce due to infidelity, marital intimacy, marital satisfaction, and ethical orientation styles, including minimum and maximum scores, skewness, kurtosis, along with mean and standard deviation indices. Accordingly, the means were 44.63 for inclination towards divorce due to infidelity, 86.65 for marital intimacy, 155.40 for marital satisfaction, and 112.52 for ethical orientation styles. Moreover, skewness and kurtosis values

were between -2 and +2, thus the data were normally distributed at the 0.05 level.

In this research, Structural Equation Modeling with Partial Least Squares (PLS-SEM) approach using SMART-PLS3 software was employed to examine the direct and indirect effects among the variables. The results from the validity and reliability checks of the measurement model are reported in Table 2.

Table 2

The results of Cronbach's alpha coefficients and composite reliability coefficient (CR) and convergent validity (AVE)

Variable	Cronbach's Alpha (Alpha>0.7)	Composite Reliability (CR>0.7)	Average Variance Extracted)AVE>0.4(
Tendency to divorce involved in breach of contract	0.952	0.960	0.730
Marital intimacy	0.991	0.993	0.965
Marital Satisfaction	0.830	0.808	0.906
Moral orientation styles	0.937	0.954	0.805

All scales have Cronbach's alpha and composite reliability values above 0.7, indicating acceptable reliability. Additionally, for each scale, the Average Variance Extracted (AVE) is above 0.4, thus convergent validity and the reliability of the measurement model are confirmed. To calculate discriminant validity, the Fornell-Larcker criterion was used, which has been reported in Table 3. According to this test, a latent variable should have more dispersion among its own observables than its maximum correlation with other latent variables, and the square root of AVE for each latent variable should be greater than its highest correlation with other latent variables.

Table 3

The results of divergent validity investigation by Fornell and Locker method

Research variables	Moral orientation styles	Marital Satisfaction	Marital intimacy	Tendency to divorce involved in breach of contract
Moral orientation styles	0.897			
Marital Satisfaction	0.838	0.952		
Marital intimacy	0.858	0.983	0.983	
Tendency to divorce involved in breach of contract	-0.777	-0.921	-0.905	0.854

Structural equation modeling analysis with PLS includes two stages: measurement model fitting and structural model fitting. The overall model fit is examined using the goodness-of-fit index (Gof). The calculation of GOF fit is to reduce the difference between observed and reproduced covariance matrices. For this index, values of 0.01, 0.25, and 0.36 are described as weak, moderate, and strong, respectively.



Table 4

The results of the overall fit of the model with the GOF criterion

	Communality	<i>R</i> ²
Moral orientation styles	0.805	0.773
Marital Satisfaction	0.905	
Marital intimacy	0.965	
Tendency to divorce involved in breach of contract	0.730	0.967

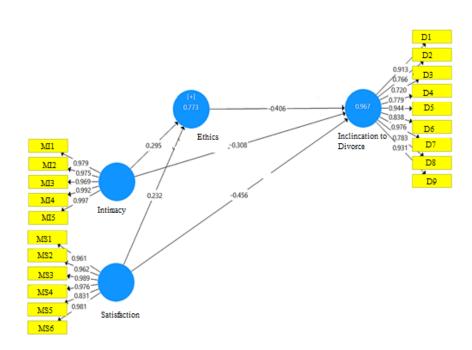
$$GOF = \sqrt{(Communality) \times (R Square)^2} = \sqrt{0.83 \times 0.87} = 0.85$$
$$(Communality) = \frac{0.805 + 0.903 + 0.905 + 0.965 + 0.690 + 0.730}{6}$$
$$= 0.83$$
$$(R Square)^2 = \frac{0.773 + 0.967}{2} = 0.87$$

As seen in the calculations above, only the intrinsic variables have R^2 values. After calculations, the GOF index is 0.85, which is a suitable indicator and reflects the high overall quality of the model.

Figure 1

Factor Loadings

The results from testing the research model using Smart PLS software are presented in Figure 1, where the values written on the lines in Figure 1 represent the beta coefficients resulting from the regression equation between variables, which are the path coefficients, and the numbers within each circle indicate the R2 value for the endogenous variables of the model.



To examine the direct relationship of marital satisfaction and marital intimacy with the inclination towards divorce due to infidelity, structural equations are used, and for the prediction considering the mediating role of ethical orientation styles, the Sobel test is employed. The results from the structural equations and path analysis are presented in Table 5.



Sobel Test

Path	Direct effect			Sobel test Mediating effect		Total effect
	Coefficient	t statistic	S	Coefficient	z.value	
Marital satisfaction \rightarrow styles of moral orientation	0.232	2.56	0.05	-	4.19	-
Styles of moral orientation \rightarrow Tendency to divorce involved in breach of contract	-0.406	5.82	0.04	-		-
Marital satisfaction \rightarrow styles of moral orientation \rightarrow Tendency to divorce involved in breach of contract	-	-	-	(0.232)× (- 0.406)=-0.094		-
Marital satisfaction \rightarrow Tendency to divorce involved in breach of contract	-0.456	3.381	0.03		-	(-0.456)+ (-0.094)= - 0.55
Marital intimacy \rightarrow styles of moral orientation	0.295	2.895	0.08	-	3.45	-
Styles of moral orientation \rightarrow Tendency to divorce involved in breach of contract	-0.406	5.824	0.04	-		-
Marital intimacy \rightarrow styles of moral orientation \rightarrow tendency to divorce involved in breach of contract	-	-	-	(0.295)× (- 0.406)=-0.12		-
Marital intimacy \rightarrow Tendency to divorce involved in breach of contract	-0.308	2.954	0.04		-	(-0.308)+ (-0.12)=- 0.428

The results confirmed the direct effect of marital satisfaction on the inclination towards divorce due to infidelity with a coefficient of 0.232 and a test statistic of 2.555. Also, the direct effect of ethical orientation styles on the inclination towards divorce due to infidelity was confirmed with a coefficient of -0.406 and a test statistic of 5.824. The indirect effect of marital satisfaction on the inclination towards divorce due to infidelity, mediated by ethical orientation styles, using the Sobel test with a coefficient of -0.094 and a z-value of 4.19, and the direct effect of marital satisfaction on the inclination towards divorce due to infidelity with a coefficient of -0.456 and a tvalue of 3.381 were confirmed. Ultimately, marital satisfaction directly and also mediated by ethical orientation styles predicts the inclination towards divorce due to infidelity by -0.55. The negative sign indicates that with an increase in marital satisfaction mediated by ethical orientation styles, the inclination towards divorce due to infidelity decreases. Thus, it can be stated that with 95% confidence, marital satisfaction directly and also mediated by ethical orientation styles can predict the inclination towards divorce due to infidelity among couples.

Also, the direct effect of marital intimacy on the inclination towards divorce due to infidelity was confirmed

with a coefficient of 0.295 and a test statistic of 2.895. Additionally, the direct effect of ethical orientation styles on the inclination towards divorce due to infidelity was confirmed with a coefficient of -0.406 and a test statistic of 5.824. The indirect effect of marital intimacy on the inclination towards divorce due to infidelity, mediated by ethical orientation styles, using the Sobel test with a coefficient of -0.12 and a z-value of 3.45, and the direct effect of marital intimacy on the inclination towards divorce due to infidelity with a coefficient of -0.308 and a t-value of 2.954 were confirmed. Ultimately, marital intimacy directly and also mediated by ethical orientation styles predicts the inclination towards divorce due to infidelity by -0.428. The negative sign indicates that with an increase in marital intimacy mediated by ethical orientation styles, the inclination towards divorce due to infidelity decreases. Thus, it can be stated that with 95% confidence, marital intimacy directly and also mediated by ethical orientation styles can predict the inclination towards divorce due to infidelity among couples.

To simultaneously test the proposed variables, the "Preacher and Hayes bootstrap macro" was used with SPSS24 software.



Macro Preacher and Hayes Test

Relation	direct effect			of Sobel test Mediating effect		Total effect
	Coefficient	t statistic	S	Coefficient	z.value	
Marital satisfaction \rightarrow styles of moral orientation	0.232	2.56	0.05	-	4.19	-
Styles of moral orientation \rightarrow Tendency to divorce involved in breach of contract	-0.406	5.82	0.04	-		-
Marital satisfaction \rightarrow styles of moral orientation \rightarrow Tendency to divorce involved in breach of contract	-	-	-	(0.232)× (- 0.406)=-0.094		-
Marital satisfaction \rightarrow Tendency to divorce involved in breach of contract	-0.456	3.381	0.03		-	(-0.456)+ (-0.094)= - 0.55
Marital intimacy \rightarrow styles of moral orientation	0.295	2.895	0.08	-	3.45	-
Styles of moral orientation \rightarrow Tendency to divorce involved in breach of contract	-0.406	5.824	0.04	-		-
Marital intimacy →styles of moral orientation →tendency to divorce involved in breach of contract	-	-	-	(0.295)× (- 0.406)=-0.12		-
Marital intimacy \rightarrow Tendency to divorce involved in breach of contract	-0.308	2.954	0.04		-	(-0.308)+ (-0.12)=- 0.428

Table 6 shows that the bootstrap test results for all mediated paths are significant at the 0.05 level. The confidence interval is 95% and the number of bootstrap resamples is 5000. Given that zero is outside the confidence interval in all paths, all assumed mediated relationships are significant. Therefore, each of the variables, marital satisfaction and marital intimacy, mediated by ethical orientation styles, predicts the inclination towards divorce due to infidelity.

4. Discussion and Conclusion

The tests conducted on predicting the tendency towards divorce due to infidelity, using marital satisfaction and the mediation of ethical orientation styles, indicated that there was a direct relationship between marital satisfaction and the tendency towards divorce due to infidelity. Additionally, an inverse relationship existed between marital satisfaction and the tendency towards divorce due to infidelity, mediated by ethical orientation styles (p < 0.05). The Sobel test showed that marital satisfaction directly and also mediated by ethical orientation styles predicts the tendency towards divorce due to infidelity to the tendency towards for the tendency towards divorce due to infidelity to the tendency towards divorce due to infidelity by -0.55.

Previous research results have shown that there is both a direct and an indirect relationship between marital satisfaction and the tendency towards divorce due to infidelity (Besharat et al., 2021; Brewer et al., 2015; Cardoso & Costa, 2019; El-Kassem et al., 2023; Isa-Najad & Bagheri,

2017; Yahyaei Rad & Salimi, 2021; Yeon & Choi, 2020; Zeheiri et al., 2020).

The final analysis shows that marital satisfaction is inversely and strongly related to the tendency towards divorce due to infidelity. This relationship intensifies when mediated by ethical orientation styles. Thus, with an increase in marital satisfaction, the tendency towards divorce due to infidelity decreases. This justifies the use of interventionist approaches to strengthen marital satisfaction to reduce the tendency towards divorce due to infidelity.

Tests conducted on predicting the tendency towards divorce due to infidelity, using marital intimacy and the mediation of ethical orientation styles, indicated that marital intimacy directly related to the tendency towards divorce due to infidelity. This relationship was confirmed at the p < 0.05 level. Moreover, marital intimacy had a significant and inverse relationship with the tendency towards divorce due to infidelity, mediated by ethical orientation styles (p < 0.05). The Sobel test showed that marital intimacy directly and also mediated by ethical orientation styles predicts the tendency towards divorce due to infidelity by -0.428.

In the research background, results confirmed relationships between marital intimacy and each of the variables of ethical orientation styles and the tendency towards divorce due to infidelity (Bazargan et al., 2021; Besharat et al., 2021; Brewer et al., 2015; Cardoso & Costa, 2019; Dadoo & Dabiri, 2019; El-Kassem et al., 2023; Isa-Najad & Bagheri, 2017; Mehdipour-Rabori et al., 2020; Miri & Najafi, 2017; Mokhles et al., 2021; Moradi et al., 2020;



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Yahyaei Rad & Salimi, 2021; Yeon & Choi, 2020; Zeheiri et al., 2020). Analyzing the general hypothesis and the existing background, it can be interpreted that there is always an inverse relationship between marital intimacy and the tendency towards divorce due to infidelity, which remains stable when mediated by ethical orientation styles. Indeed, increasing marital intimacy reduces the intensity of the tendency towards divorce due to infidelity. Therefore, it can be said that adopting interventionist approaches based on strengthening marital intimacy can reduce the tendency towards divorce due to infidelity. However, marital intimacy remains a predictor of the tendency towards divorce due to infidelity.

A simultaneous test of the variables proposed in the general hypothesis used a bootstrap test. This test showed that all mediated paths of the input variables, mediated by ethical orientation styles, predicted the tendency towards divorce due to infidelity at the p < 0.05 level.

Although no research background was observed that matched the hypotheses of the research, the reviewed studies have examined and confirmed the dual and multiple relationships of each of the input and criterion variables. Some of them also addressed the ethical orientation styles variable, which reported predicting the tendency towards divorce due to infidelity. The results of the existing background, as addressed in the hypotheses of this research, have sporadically confirmed the direct and indirect relationships of the input, output, and criterion variables. However, this research was designed with a distinct conceptual model or existing background, and the simultaneous testing of hypotheses was conducted. Background that can be introduced in line with the general hypothesis (Allen et al., 2022; Apostolou & Wang, 2021; Aseka et al., 2021; Eskandari & Parandin, 2022; Fardad et al., 2021; Fincham & May, 2017; Goodarzi, 2019; Hou et al., 2019; Khatibi & Meghrazi, 2023; Mahmoudpour et al., 2020; Mehdipour-Rabori et al., 2020). In analyzing the overall research hypothesis, it can be said that each of the input variables relates differently to the tendency towards divorce due to infidelity. The direction and intensity of their relationship with the criterion variable varied. However, when each of them establishes a relationship with the criterion variable of the tendency towards divorce due to infidelity mediated by ethical orientation styles, the intensity of their relationship changes. For example, the relationship of marital satisfaction and marital intimacy, passing through the output variable of ethical orientation styles, is strengthened, leading to a reduction in the tendency towards

divorce due to infidelity. This result is confirmed by comparing the absolute values of the direct and indirect relationships and also by the tests conducted. Therefore, the results can be used in employing interventionist approaches to reduce and control the tendency towards divorce due to infidelity.

5. Suggestions and Limitations

The experienced limitations in this research included the prevalence of COVID-19 health conditions in the community, which faced challenges in meeting respondents to the research scales, requiring more time and adherence to health protocols. Furthermore, the results of this research, given the content of the scales used and the research's conceptual model, will be generalizable. Accordingly, practical suggestions are presented: an interventionist action should be taken regarding ethical orientation styles in couples' relationships to prevent the occurrence of the tendency towards divorce due to infidelity. It is also recommended that couples make necessary efforts to strengthen marital satisfaction or enhance marital intimacy to prevent the occurrence of the tendency towards divorce due to infidelity.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

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

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Declaration of Interest

The authors report no conflict of interest.





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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

References

- Agboola, E. B., & Ojo, T. F. (2022). Marital Infidelity and Domestic Violence among Married Couples in Ekiti State, Nigeria. In O. A. Fawole & S. L. Blair (Eds.), *Families in Nigeria: Understanding Their Diversity, Adaptability, and Strengths* (Vol. 18, pp. 123-135). Emerald Publishing Limited. https://doi.org/10.1108/S1530-353520220000018010
- Alizadehfard, S., & Razaghi, M. (2021). Structural model of the relationship between marital satisfaction, cognitive moral foundations and marital commitment. *Counseling Culture and Psycotherapy*, 12(47), 259-282. https://qccpc.atu.ac.ir/article 12656 en.html
- Allen, S., Hawkins, A. J., Harris, S. M., Roberts, K., Hubbard, A., & Doman, M. (2022). Day-to-day changes and longer-term adjustments to divorce ideation: Marital commitment uncertainty processes over time. *Family Relations*, 71(2), 611-629. https://doi.org/10.1111/fare.12599
- Apostolou, M., & Wang, Y. (2021). What makes It Difficult to keep an Intimate Relationship: Evidence From Greece and China. *Evolutionary Psychology*, 19(1), 1474704920987807. https://doi.org/10.1177/1474704920987807
- Aseka, E. O., Ireri, N. W., & Menecha, J. B. (2021). Relationship between spousal support and marital satisfaction among Christian couples: A case study of two selected churches in Nairobi County, Kenya. *African Journal of Emerging Issues*, 3(4), 70-78.
- https://ajoeijournals.org/sys/index.php/ajoei/article/view/192
- Bagarozzi, D. A. (2001). Enhancing Intimacy in Marriage: Theoretical considerations. Routledge. https://www.taylorfrancis.com/books/mono/10.4324/978131 5787053/enhancing-intimacy-marriage-dennis-bagarozzi
- Bakhtyari, E., Hosseini, S., & Arefi, M. (2021). The Mediating Role of Marital Intimacy in the Relationship between Attachment Style and Couples' Attitude Towards Infidelity [Research]. *Journal of counseling research*, 20(77), 122-140. https://doi.org/10.18502/qjcr.v20i77.6144
- Bayat, B., Tavakoli, B. A.-H., & Ghannadi Baradaran, N. (2022). The Effectiveness of Cognitive-Behavioral Stress Management in Improving Rumination and Psychological Distress in Women Experiencing Marital Infidelity. *Applied Family Therapy Journal (AFTJ)*, 3(1), 207-222. https://doi.org/10.61838/kman.aftj.3.1.11
- Bazargan, S., Ramezani, M. A., Atashpour, S. H., & Amiri, R. (2021). Comparison of the effectiveness of the training package for promoting couples' interpersonal relationships based on the emotion-oriented approach and cognitivebehavioral marital counseling on attachment and marital commitment. *Quarterly of Counseling Culture and*

Psychotherapy, *12*(48), 259-294. https://www.magiran.com/paper/2354528

- Besharat, M. A., Mirzaei, T., Gholamali Lavasani, M., & Naghipoor, M. (2021). The moderating role of positive and negative affects on the association of sexual knowledge and attitude with marital satisfaction. *Journal of Family Psychology*, 4(2), 3-18. https://www.ijfpjournal.ir/article_245528_280fb0a15bf445fb 1696b898aab906a8.pdf
- Brewer, G., Hunt, D., James, G., & Abell, L. (2015). Dark Triad traits, infidelity and romantic revenge. *Personality and individual differences*, 83, 122-127. https://doi.org/10.1016/j.paid.2015.04.007
- Cardoso, B. L. A., & Costa, N. (2019). Marital Social Skills and Marital Satisfaction of Women in Situations of Violence. *Psico-USF*, 24. https://doi.org/10.1590/1413-82712019240207
- ÇEIİK, E., ÇEIİK, B., YavaŞ, Ş., & SÜLer, M. (2022). Investigation of Marital Satisfaction in terms of Proactive Personality, Meaning in Life, Offense-Specific Forgiveness. *International Journal of Psychology and Educational Studies*, 9(1), 1-11. https://doi.org/10.52380/ijpes.2022.9.1.348
- Dadoo, P., & Dabiri, S. (2019). Predicting the marital satisfaction based on marital burnout, loneliness and sexual function in married students [Research]. Journal of Psychological Science, 18(76), 499-507. http://psychologicalscience.ir/article-1-316-en.html
- El-Kassem, R. C., Lari, N., Al Naimi, M., Al-Thani, M. F., Al Khulaifi, B., & Al-Thani, N. K. (2023). Impact of leadership gender stereotyping on managing familial conflict, matrimonial strategies, divorce decisions and marital satisfaction in Qatar. *Journal of Family Business Management*, 13(2), 300-313. https://www.emerald.com/insight/content/doi/10.1108/JFBM -10-2021-0116/full/html
- Eskandari, M., & Parandin, S. (2022). Predicting Attitudes Toward Marital Infidelity Based on Components of Sexual Satisfaction and Intimacy in Couples. *The Women and Families Cultural-Educational*, 17(58), 183-199. https://cwfs.ihu.ac.ir/article_207168_40c9c8bbc2a93dcd283 586ffd1d46eaa.pdf
- Fardad, F., Dokanei fard, F., & Mirhashemi, M. (2021). The structural model of marital commitment based on communication patterns among women: The mediating role of emotional intelligence. *Journal of Applied Family Therapy*, 2(1), 1-22. https://doi.org/10.22034/aftj.2021.259404.1033
- Fincham, F. D., & May, R. W. (2017). Infidelity in romantic relationships. *Current opinion in psychology*, 13, 70-74. https://doi.org/10.1016/j.copsyc.2016.03.008
- Flores, N., & Silva, S. (2021). Machine learning model to predict the divorce of a married couple. 3C Tecnologia, 83-95. https://3ciencias.com/wp-content/uploads/2021/05/art.-5_3C-Tecnologi%CC%81a_Special_Issue_37-2-1.pdf
- González, L., Castillo, I., & Balaguer, I. (2019). Exploring the Role of Resilience and Basic Psychological Needs as Antecedents of Enjoyment and Boredom in Female Sports. *Revista de Psicodidáctica (English ed.)*, 24(2), 131-137. https://doi.org/10.1016/j.psicoe.2019.02.001
- Goodarzi, M. (2019). Predicting the Probability of Marital Infidelity based on Self-differentiation, Family Function & Couple Burnout [Research]. Journal of counseling research, 18(71), 80-99. https://doi.org/10.29252/jcr.18.71.80
- Graham, J., Nosek, B. A., Haidt, J., Iyer, R., Koleva, S., & Ditto, P. H. (2011). Mapping the moral domain. *Journal of personality* and social psychology, 101(2), 366-385. https://doi.org/10.1037/a0021847



Darbandi et al.

- Grøntvedt, T. V., Kennair, L. E. O., & Bendixen, M. (2020). Breakup Likelihood Following Hypothetical Sexual or Emotional Infidelity: Perceived Threat, Blame, and Forgiveness. *Journal of Relationships Research*, 11, e7, Article e7. https://doi.org/10.1017/jrr.2020.5
- Grover, S., & Helliwell, J. F. (2019). How's Life at Home? New Evidence on Marriage and the Set Point for Happiness. Journal of Happiness Studies, 20(2), 373-390. https://doi.org/10.1007/s10902-017-9941-3
- Haidt, J., & Graham, J. (2007). When Morality Opposes Justice: Conservatives Have Moral Intuitions that Liberals may not Recognize. *Social Justice Research*, 20(1), 98-116. https://doi.org/10.1007/s11211-007-0034-z
- Hou, Y., Jiang, F., & Wang, X. (2019). Marital commitment, communication and marital satisfaction: An analysis based on actor-partner interdependence model. *International journal of psychology*, 54(3), 369-376. https://doi.org/10.1002/ijop.12473
- Isa-Najad, O., & Bagheri, A. (2017). Phenomenology of strategies of justifying infidelity: Mechanisms to cope with cognitive dissonance of marital infidelity. *Journal of Family Counseling* & *Psychotherapy*, 6(2), 188. https://www.magiran.com/paper/1680188
- Isma, M. N. P., & Turnip, S. S. (2019). Personality Traits and Marital Satisfaction in Predicting Couples' Attitudes Toward Infidelity. *Journal of Relationships Research*, 10, e13, Article e13. https://doi.org/10.1017/jrr.2019.10
- Katafiasz, H., Patton, R., Tefteller, D., & Takeda, M. (2020). Ethical Decision-Making in Marriage and Family Therapy: A Review of the Literature. *Journal of systemic therapies*, 39(4), 29-39. https://doi.org/10.1521/jsyt.2020.39.4.29
- Kazemi, M., & Zanganeh, F. (2021). Prediction of Marital Dissatisfaction Based on the Resilience, Marital Commitment and Rumination. *International Journal of Applied Behavioral Sciences*, 7(4), 1-10. https://www.magiran.com/paper/2248614
- Khatibi, P., & Meghrazi, P. (2023). Predicting psychological helplessness based on initial maladaptive schemas and coping strategies in women affected by marital infidelity. *Journal of Applied Family Therapy*, 4(2), 487-506. https://doi.org/10.22034/aftj.2022.304757.1200
- Luk, B. H. K., & Loke, A. Y. (2019). Sexual satisfaction, intimacy and relationship of couples undergoing infertility treatment. *Journal of Reproductive and Infant Psychology*, 37(2), 108-122. https://doi.org/10.1080/02646838.2018.1529407
- Mahmoudpour, A., Shiri, T., Farah-Bakhsh, K., & Zulfaqhari, S. (2020). Anticipation of divorce tendency based on marital Burnout and distress tolerance by the mediation of loneliness in female applicants for divorce. *Quarterly of Counseling Culture and Psychotherapy*, 11(42), 121-141. https://www.magiran.com/paper/2137451
- Mansouri, Z., Bagheri, F., Dortaj, F., & Abolmaali, K. (2020). Providing a structural model for predicting marital intimacy based on attachment styles mediated by the component of love commitment in married students. *Journal of psychologicalscience*, 19(85), 81-90. https://psychologicalscience.ir/article-1-609-en.html
- McDaniel, B. T., Drouin, M., & Cravens, J. D. (2017). Do you have anything to hide? Infidelity-related behaviors on social media sites and marital satisfaction. *Computers in human Behavior*, 66, 88-95. https://doi.org/10.1016/j.chb.2016.09.031
- Mehdipour-Rabori, R., Dehsheakhi, M. A., Nouhi, E., & Nematollahi, M. (2020). Comparison of the relationship between sexual function, marital adjustment, and life satisfaction in diabetic and non-diabetic women. *International*

journal of community based nursing and midwifery, 8(4), 324. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7648857/

- Miri, N., & Najafi, M. (2017). The Role of Intimacy, Loneliness, and Alexithymia in Marital Satisfaction Prediction [Original Article]. *Qom University of Medical Sciences Journal*, 11(3), 66-74. http://journal.muq.ac.ir/article-1-765-en.html
- Mokhles, H., Fattahi Andbil, A., & Shafiabady, A. (2021). The Effectiveness "Solution -Focused Brief Therapy" on Marital Intimacy and Contingencies of Self-Worth in Divorce Applicant Couples [Research]. Journal of Health Promotion Management, 10(2), 110-122. http://jhpm.ir/article-1-1289en.html
- Moradi, G., Kakaberai, K., & Afshary, K. (2020). Investigating The Mediator Role of Social Problem Solving in Relationship Between Relations Ethics with Marital intimacy. *Psychological Models and Methods*, 10(38), 147-162. https://jpmm.marvdasht.iau.ir/article_4239_edcd3edf35e677 ab528cf0bac799d259.pdf
- Parsakia, K., Farzad, V., & Rostami, M. (2023). The mediating role of attachment styles in the relationship between marital intimacy and self-differentiation in couples. *Applied Family Therapy Journal (AFTJ)*, 4(1), 589-607. https://doi.org/10.61838/kman.aftj.4.1.29
- Parsakia, K., & Rostami, M. (2023). Digital Intimacy: How Technology Shapes Friendships and Romantic Relationships. *AI and Tech in Behavioral and Social Sciences*, 1(1), 27-34. https://doi.org/10.61838/kman.aitech.1.1.5
- Pichon, M., Treves-Kagan, S., Stern, E., Kyegombe, N., Stöckl, H., & Buller, A. M. (2020). A Mixed-Methods Systematic Review: Infidelity, Romantic Jealousy and Intimate Partner Violence against Women. *International journal of environmental research and public health*, 17(16), 5682. https://doi.org/10.3390/ijerph17165682
- Roslina Che, S., Nora Abdul, H., Noraini Mohd, H., & Muhammad Helmi Md, S. (2021). REPERCUSSIONS OF MARITAL INFIDELITY IN MALAYSIA: A LEGAL RESPONSE. *IIUM Law Journal*, 29((S1)), 91-109. https://doi.org/10.31436/iiumlj.v29i(S1).637
- Rusbult, C. E., Johnson, D. J., & Morrow, G. D. (1986). Predicting Satisfaction and Commitment in Adult Romantic Involvements: An Assessment of the Generalizability of the Investment Model. *Social psychology quarterly*, 49(1), 81-89. https://doi.org/10.2307/2786859
- Salemi, Y., Abooei, A., & Saeidmanesh, M. (2022). Predicting Sexual Satisfaction of Married Women in Yazd City during Coronavirus disease Epidemic Based on Marital Commitment, Marital Intimacy and Attachment Styles. *Journal of Applied Family Therapy*, 2((Covid-19 articles collection)), 94-115. https://doi.org/10.22034/aftj.2022.320628.1310
- Sayadi, M., Shahhosseini Tazik, S., Madani, Y., & Gholamali Lavasani, M. (2017). Effectiveness of Emotionally Focused Couple Therapy on Marital Commitment and Couple Burnout in Infertile Couples. J Educ Community Health, 4(3), 26-37. https://doi.org/10.21859/jech.4.3.26
- Shokri, A., Shafie Abadi, A., & DokaneiFard, F. (2021). Structural modeling of ego strength on job success with mediation of marital satisfaction and self-esteem. *Quarterly of Counseling Culture and Psychotherapy*, 12(45), 187-209. https://www.magiran.com/paper/2244730
- Yahyaei Rad, E., & Salimi, H. (2021). Development of a Model for Promoting Marital Satisfaction and Evaluation of its Effectiveness in Reducing the Tendency to Divorce. *The Women and Families Cultural-Educational Journal*, 15(53), 55-84. https://www.magiran.com/paper/2255077



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- Yeon, E. M., & Choi, H.-S. (2020). Trajectories of Mothers' Perceived Marital Conflict and its Relationship to Depression and Children'School Readiness, Self-esteem, and Happiness. *Journal of the Korea Academia-Industrial Cooperation Society*, 21(5), 344-352. https://koreascience.kr/article/JAKO202016151585326.page
- Zeheiri, A., bassak nejad, S., & Abbaspur, Z. (2020). The effectiveness of Couples Therapy Based on Improving Quality of Life on conflict resolution styles, marital satisfaction, and quality of life of couples with a history of marital infidelity. *Journal of Family Psychology*, 7(2), 1-16. https://doi.org/10.22034/ijfp.2021.245573

