

Investigating the Causal Relationship of Emotion Regulation and Self-Criticism with Social Incompatibility with the Mediating Role of Self-Compassion among Boy and Girl High School Students

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Abstract

Background: It has been established that social incompatibility will have adverse effects on adolescents' personal, social, educational, and professional lives. The objective of the present study was to investigate the causal relationship of emotion regulation and self-criticism with social incompatibility with the mediating role of self-compassion among boy and girl high school students.

Methods: The design was descriptive-correlational estimated through structural equation modeling (SEM). The population of the study included all the high school students in Ahvaz, Iran in the academic year of 2020-2021. Among them, 848 students (443 girls and 405 boys) were selected through multi-stage cluster sampling method. The instruments included Gross and John's Emotion Regulation Scale (2003), Thomson and Zuroff's (2004) Self-Criticism Scale, Neff's (2003) Self-Compassion Scale, and Weitzman's (1990) Social Development Scale. The fit of the proposed model was examined by the use of structural equation modeling (SEM) through AMOS software (version 24). Bootstrap method was used to investigate the indirect effects. In addition, multi-group structural equation was applied to compare the proposed model of boys and girls.

Results: The results showed a good fit of the proposed model with the data ($X^2/df=2.80$, RMSEA=0.047, CFI=0.90, IFI=0.91, GFI=0.96). Additionally, emotion regulation ($\beta=0.63$, $P<0.001$), self-criticism ($\beta=-0.26$, $P<0.005$), and self-compassion ($\beta=0.22$, $P<0.012$) were directly related to the students' social maladaptation. Moreover, self-compassion mediated the relationship of emotion regulation and self-criticism with social incompatibility ($P<0.05$). Furthermore, there were no significant differences between the models of the girls and the boys.

Conclusion: Thus, it is suggested that the roles of emotion regulation, self-criticism, and self-compassion in predicting students' social maladaptation be considered and some training programs be developed and implemented in this regard.

Keywords: Emotion regulation, Self-criticism, Compassion, Social adjustment, Gender

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1. Introduction

One of the important goals of modern education systems is to train individuals who can overcome their problems in everyday life and in the social environment easily. This basic goal can be achieved through providing the learning opportunities for achievements and enabling the learners to make use of their communication and social skills in the best way (to achieve the desired social adjustment) (1). Social adjustment refers to an individual's ability to adapt to the environment (2). It is also defined as the ability to adapt, to compromise, to cooperate, and to cope with oneself, the environment, and others (3).

Research showed that social incompatibility has a negative impact on the quality of performance and the academic achievements of students (4). Since one

of the main goals of education and higher education is to create the right conditions in order to reach the highest level of academic achievement, if one does not have the desired social status among his classmates, one's academic achievement will be impaired (5). Also, another study revealed that social incompatibility will have adverse effects on adolescents' personal, social, educational, and professional lives and therefore needs further investigation and attention (6).

Literature review demonstrates that emotion regulation is an important factor in determining health and successful performance in social interactions particularly in the adolescence and youth (7). In addition, an increase in the frequency of positive emotional experiences contributes to the effective meditation of stressful situations. It even enhances the necessary activities in response to social situations

(8). Numerous studies have been conducted on the effectiveness of emotion regulation training in social skills and social acceptance. They indicated the effect of emotion regulation on individuals' social skills and adjustment (9-12).

On the other hand, Yousefi Moridani and colleagues (13) believed that another component related to the individuals' interpersonal relationships and social adjustment is self-criticism. The results of various studies showed that high self-criticism is associated with a wide range of psychological problems; it can lead to the increased anger, social anxiety and avoidance, delinquency, personality disorders, interpersonal problems, and social incompatibility (13-15). The self-critic is involved in internal harassment leading to debilitating stress, anxiety about others' evaluation and fear of failure in various areas of life, including social relationships (16). In such a situation, the individual constantly criticizes one's behavior not only considering the goals and plans of one's personal life, but also how others would evaluate the behavior or the individual's inability in providing appropriate reactions in social situations. Thus, one cannot satisfy one's desires and needs, or present one's true self, traits, beliefs, ideas, and interests in social situations due to constantly doubting as to whether they would be correct and desirable or whether they are best represented or expressed (17). In such a situation, the individual is not able to show the right communication skills and abilities. He gradually either deviates from society or feels angry. In both conditions, his social function is impaired and social incompatibility would appear (15).

Furthermore, individuals may experience behavioral disorders, impulsive behavior, anger, and aggression toward themselves and others throughout their lives. They may frequently criticize themselves for these annoying behaviors with inappropriate functions. They would behave so strictly that they even limit or avoid their social relationships (18). However, the way individuals react to behavioral disorders or aggression towards others depends on their psychological characteristics, including self-compassion.

Self-compassion is defined as having a positive attitude towards oneself when things go wrong. In fact, self-compassion is considered to be an effective protective trait fostering psychological flexibility, mental health, and social adjustment (19-21). Therefore, instead of criticizing his behavior and actions, an individual tries to take care of himself to deal with his personal and communication inadequacies and failures

without judgment and to believe that his experiences are part of humankind experiences (22). In such situations, instead of suppressing, denying, ruminating, humiliating, and punishing himself or others, he would deal with his relationships and his desires fairly. He would not only experience inner peace but also interact with others regardless of a one-sided judgment and solve his communication problems through dialogue. Under such circumstances, the individual achieves social adjustment and maintains and expands his social support and communication network (23).

Examining the relationships between the mentioned variables, this study investigates the differences between boy and girl students. In fact, the difference in gender roles is one of the most important areas of boys' and girls' lived experiences, which exist across societies and cultures. The division of gender roles begins in childhood in the stage of socialization and is manifested in all the areas of life. In a general definition, gender roles refer to the behavioral expectations of both genders in different situations and social norms (24). According to Interactive Model of Gender-Related Behavior, gender does not determine what behavior an individual is able to perform. However, one's gender determines the attitudes, which both the individual and others have toward one's behavior. Thus, gender affects boys' and girls' behavior, attitudes, cognitions, and beliefs (25).

According to what have been stated, it seems that different psychological variables can affect individuals' social adjustment or social maladaptation. Although different studies have examined the effect of each of these variables on psychological adjustment, the way these variables interact and their direct or indirect relationships with social adjustment among different groups, particularly high school students who are in the identity formation process, have not been investigated. Therefore, this study sought to investigate and compare a model of causal relationships of emotional regulation and self-criticism with social incompatibility with the mediation of self-compassion in boy and girl high school students in Ahvaz, Iran. Figure 1 shows the proposed model.

2. Methods

The design of this study was correlational, which was estimated through structural equation modeling.

2.1. Statistical population and sample

The population of the study included all the high

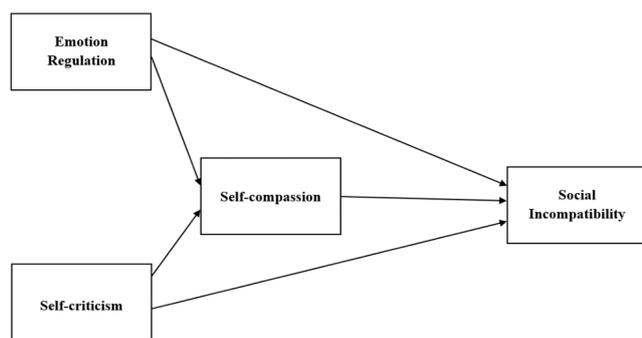


Figure 1: The figure shows the proposed model of the present study.

school students in Ahvaz in the academic year of 2020-2021. It consisted of 49744 students (23466 girls and 26278 boys). Considering Cochran's formula, gender and 10% probability of sample loss, a sample of 850 students (445 girls and 405 boys) was selected through multi-stage cluster sampling method. Thus, among the four districts of Ahvaz, two districts were selected. From each district, four high schools (two high schools for girls and two high schools for boys) were selected. Finally, the questionnaires were administered virtually. Before collecting data, we obtained written informed consent. After administering and collecting the questionnaires, there were two incomplete questionnaires. Consequently, they were removed and the final sample included 848 students (443 girls and 405 boys) (return rate: 99.8%).

Inclusion criteria in this study were: being in the age range of 15 to 17 years, average IQ, and full satisfaction. Exclusion criteria also included a person's unwillingness to cooperate or take medication or attend a training course that may affect the research results.

2.2. Instruments

Emotion Regulation Scale: Emotion Regulation Scale was designed by Gross and John (26). It consists of 10 items examining two subscales of re-evaluation (six items) and suppression (four items). The responses are in a seven-point Likert scale ranging from a strongly disagree (1) to strongly agree (7). Cronbach's alpha coefficients were 0.79 (for re-evaluation) and 0.73 (for suppression). In addition, test-retest reliability (after three months) was 0.69 for the whole scale (26). In order to determine the convergent and discriminant validity of the Emotion Regulation Scale, the correlation of this scale with PANAS questionnaire and Depression Scale (CDI) was measured. The results revealed that the Emotion Regulation Scale had a significant correlation with positive emotion ($r=0.56$, $P<0.01$), negative emotion ($r=-0.48$, $P<0.01$), and depression ($r=-0.71$,

$P<0.01$) (11). The reliability coefficients of the scale in this work were obtained through Cronbach's alpha and split-half, which were respectively 0.60 and 0.63.

The Levels of Self-Critical Scale: The Levels of Self-Critical Scale was developed by Thompson and Zuroff (27). This scale consists of 22 items and the responses are scored in a seven-point Likert scale ranging from 0 (It does not describe me at all) to 6 (It describes me very well). Estimating Cronbach's alpha coefficients, Thompson and Zuroff (27) reported the validity of the whole scale, the comparative self-critical subscale, and the internalized self-criticism subscale to be 0.89, 0.91, and 0.86, respectively. Castilho and co-workers examined the structure validity of the Levels of Self-Critical Scale using confirmatory factor analysis and has confirmed it ($X^2/df=2.92$, $RMSEA=0.08$, $CFI=0.97$, $IFI=0.97$, $GFI=0.91$) (28). Moreover, the reliability of the whole Self-Criticism Scale was estimated through Cronbach's alpha coefficient (0.84) and split-half coefficient (0.79).

Self-Compassion Scale: The 26-item Self-Compassion Scale was designed by Neff (29). It examines the six components of self-kindness (five items), self-judgment (five items), common humanity (four items), isolation (four items), mindfulness (four items), and over-identification (four items). The items are arranged in a five-point Likert scale, which range from almost never (1) to almost always (5); a higher score indicates a higher level of self-compassion. Neff (29) estimated Cronbach's alpha coefficients for the whole scale (0.92), self-kindness (0.78), self-judgment (0.77), common humanity (0.80), mindfulness and over-identification (0.81), and isolation (0.79). Momeni and colleagues examined the structure validity of the Self-Compassion Scale with confirmatory factor analysis and has confirmed it ($X^2/df=1.90$, $RMSEA=0.055$, $CFI=0.84$, $IFI=0.85$, $GFI=0.88$) (30). The reliability coefficients of the scale in this study were estimated through Cronbach's alpha (0.77) and split-half method (0.75).

Social Development Scale: Social Development Scale, which measures the social development of 13-19 year adolescents, was applied to measure the adolescents' social adjustment or social maladaptation (31). Social Development Scale measures the six components of cooperation, cheerfulness and adaptability, respect for others, responsibility, hope, optimism, and patience and forbearance. This scale consists of 27 items and each one has three or four options to answer (31). The validity of this scale was assessed through the

correlation with a general questionnaire ($r=0.47$, $P<0.01$) (6). The reliability coefficients of the scale in this study were estimated through Cronbach's alpha (0.78) and split-half method (0.71).

2.3. Data analysis Procedure

In order to evaluate the proposed model, structural equation modeling was employed through AMOS-24 software. First, to ensure that the data of this study meet the underlying assumptions of structural equation modeling, they were examined. Thus, four assumptions of structural equations modeling, including missing data, outliers, normality, and multicollinearity were examined. On account of the online administration of the questionnaires, there were no missing data; outliers were analyzed through Mahalanobis distance demonstrating that there were no outliers. In order to investigate the assumption of normality, skewness and kurtosis estimation techniques were utilized and to investigate the assumption of multicollinearity, tolerance and Variance Inflation Factor (VIF) were used.

The confidence level for both of the indirect paths was 95 and the number of Bootstrap resampling was 2000.

In addition, in order to compare the model of the causal relationship of emotion regulation and self-criticism with social incompatibility through the mediation of self-compassion among boy and girl high school students, multi-group structural equation modeling analysis was employed. In this method, two separate analyses were not performed for both groups; however, a single analysis was conducted to examine the significance of the indexes and to test the hypotheses simultaneously. In fact, path coefficients were obtained for the two groups simultaneously. The resulting model is called the unbound model in which the estimation of the direct paths of the two groups is different.

The parameters of both groups are then limited and considered the same. Furthermore, if the difference between the Chi-square (in the bound and unbound models) and the critical Chi-square is significant, it can be concluded that the two models are different. It indicates that at least one or more direct paths in the two groups are significantly different. After observing the significant difference between the Chi-squares of the bound and unbound models, the standardized coefficients of the model of the two groups should be compared and the significance of the difference between these coefficients should also be examined.

3. Results

The sample of this study included 848 students, among which 52.2% were girls (443 students) and 47.8% were boys (405 students). There were 506 students in the tenth grade (59.6%), 171 students in the eleventh grade (20.2%), and 171 students in the twelfth grade (20.2%). The age range of the students was between 15 and 17 years.

Table 1 represents the correlation coefficients, the mean, and the standard deviation of the research variables.

The results revealed that the assumptions were met. Afterwards, to evaluate the proposed model, the model-fit indexes were examined. The results of the proposed model are shown in Table 2.

According to Table 2, fit indexes of the proposed model had a good fit ($X^2/df=2.80$, $RMSEA=0.047$, $CFI=0.90$, $IFI=0.91$, $GFI=0.96$). In addition, standardized regression weights for the direct paths are illustrated in Figure 2.

According to Figure 2, all the direct paths in the proposed model were of significance ($P<0.01$). It

Table 1: Mean, standard deviation, and the correlation coefficients' matrix of the research variables

Variables	mean±SD	1	2	3	4
1 Emotion regulation	43.78±9.17	1			
2 Self-criticism	59.04±17.40	0.04	1		
3 Self-compassion	83.11±10.96	0.14**	-0.53**	1	
4 Social maladaptation	39.58±8.64	0.10**	-0.44**	0.50**	1

Table 2: The model-fit indexes of the proposed model

Model-fit indexes	X^2	Df	X^2/df	AGFI	GFI	IFI	CFI	RMSEA
The proposed model	271.91	97	2.80	0.94	0.96	0.91	0.90	0.047
Acceptable values	-	-	$3 \leq$	$0.9 \geq$	$0.9 \geq$	$0.9 \geq$	$0.9 \geq$	$0.08 \leq$

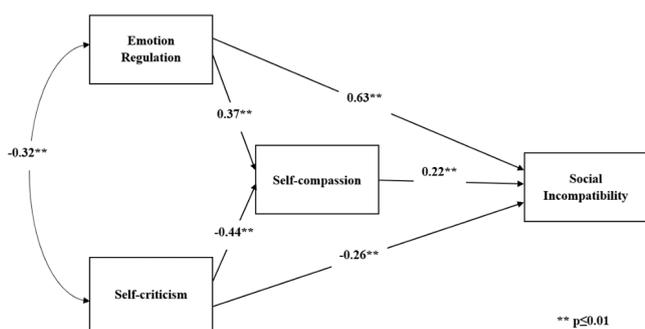


Figure 2: The figure shows the model of causal relationship of emotion regulation and self-criticism with social incompatibility with the mediating role of self-compassion in the total sample (n=848).

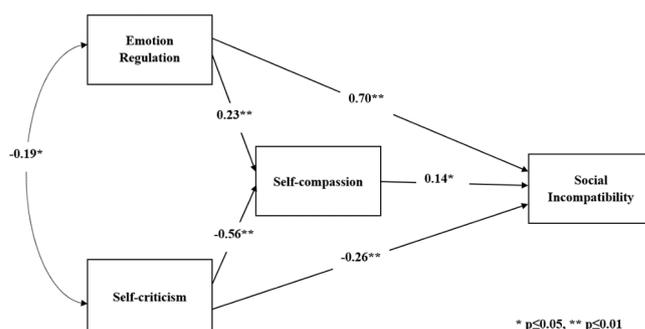


Figure 3: The figure shows the model of causal relationship of emotion regulation and self-criticism with social incompatibility with the mediating role of self-compassion in girl students (n=443).

should be noted that one of the basic assumptions of the proposed model of this study was the existence of indirect paths, which were investigated through Bootstrap method in AMOS-24 software. The results of Bootstrap analysis considering the indirect paths of the proposed model are shown in Table 3.

As Table 3 shows, the lower and the upper bounds of the confidence interval for self-compassion as the variable mediating the relationship between emotion regulation and social maladaptation were 0.013 and 0.040, respectively. Furthermore, the lower and the upper bounds of the confidence interval for self-compassion as the variable mediating the relationship between self-criticism and social incompatibility were -0.108 and -0.061, respectively. Given the fact that zero was not within this confidence interval, the indirect paths of emotion regulation and self-criticism to social incompatibility through the mediation of self-compassion were significant.

Table 4 represents the bound and the unbound models and compares these models in the two groups. Moreover, the standardized coefficients of the bound and the unbound models in each of the groups are shown in Figures 3 and 4.

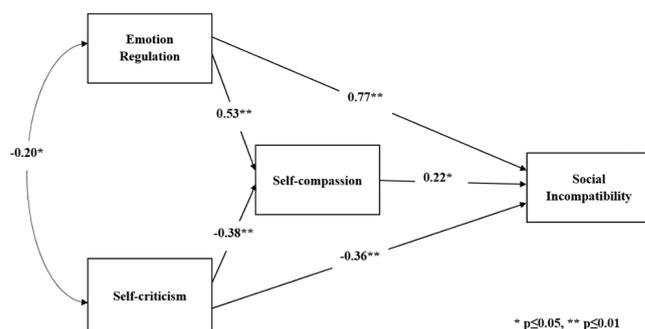


Figure 4: The figure shows the model of causal relationship of emotion regulation and self-criticism with social incompatibility with the mediating role of self-compassion in boy students (n=405).

As it is evident in Table 4, both unbound and bound models have desirable fit indexes, revealing the model-data fit in this study. However, Table 4 shows that the difference between Chi-square and the degree of freedom of the unbound and the bound models were 19.43 and 12, respectively, which were not of significance at the level of $P < 0.01$ (The critical Chi-square with the degree of freedom of 12 at the level of $P < 0.01$ was equal to 26.22). Due to the insignificance of the Chi-square difference, it can be concluded that neither of the groups (boys and girls) had different regression weights; they were the same in terms of path diagram. Therefore, the results indicated that there was

Table 3: The results of Bootstrap analysis considering indirect paths

Paths	Data	Bootstrap	Bias	Standard error	Lower bound	Upper bound
Emotion regulation → self-compassion → social maladaptation	0.025	0.025	-0.001	0.006	0.013	0.040
Self-criticism → self-compassion → social maladaptation	-0.084	-0.084	-0.001	0.012	-0.108	0.061

Table 4: The fit indexes of the bound and the unbound models

Fit indexes	χ^2	Df	χ^2/df	AGFI	GFI	IFI	CFI	RMSEA	$\Delta\chi^2$	Δdf
Unbound model	387.25	194	1.99	0.92	0.94	0.90	0.90	0.035	19.43	12
Bound model	406.68	206	1.97	0.92	0.94	0.89	0.89	0.035		

Table 5: The comparative matrix of the standardized coefficients of similar paths in boys' and girls' models

Paths	Boys/ girls	β	Critical ratio
Emotion regulation→ self-compassion	Girls	0.23**	1.85
	Boys	0.53**	
Emotion regulation→ social maladaptation	Girls	0.70**	-0.37
	Boys	0.77**	
Self-criticism→ self-compassion	Girls	-0.56**	1.84
	Boys	-0.38**	
Self-criticism→ social maladaptation	Girls	-0.26**	0.96
	Boys	-0.26**	
Self-compassion→ social maladaptation	Girls	0.14*	-0.59
	Boys	0.22*	

not a significant difference between boys and girls in terms of direct path coefficients.

To compare the standardized coefficients of similar paths accurately in the models of boys and girls, the critical ratio of the differences of the standardized coefficients in the two models was calculated through pairwise comparison method. The paths in which the absolute value of the critical ratio of the difference was more than 1.96, had a significant difference ($P < 0.05$). The comparative matrix of the standardized coefficients of similar paths in the two models is presented in Table 5.

As shown in Table 5, the absolute value of the critical ratio of the standardized coefficient of the direct paths was not more than 1.96. In other words, there were no significant differences between the standardized coefficients of the direct paths in the boys' and girls' models ($P > 0.05$).

4. Discussion

The objective of the current study was to investigate the causal relationship of emotional regulation and self-criticism with social incompatibility with the mediating role of self-compassion in boy and girl high school students in Ahvaz, Iran. The results supported the positive and the direct effect of emotional regulation on self-compassion. This finding is consistent with that of Reed and Enright (9) and Kord and Karimi (32). Emotion regulation and self-compassion are acquired traits, which can be learned. The higher the levels of emotion regulation and self-compassion are in individuals, the lower the level of anxiety is. They can also be more resilient to life challenges and their overall psychological health would improve. Emotion regulation is a set of distinctive and purposeful strategies, which individuals use to control and express their emotions. It includes a range of conscious and unconscious cognitive and behavioral strategies applied

to reduce, maintain, or increase emotions (33). Students who are able to regulate and control their emotions consciously experience higher cognitive and emotional well-being, show higher emotional management and self-acceptance, and thus experience higher self-esteem. All of these factors ultimately contribute to higher self-compassion.

In addition, the results implied that emotion regulation had a positive and direct effect on social incompatibility. This finding is in line with those of the previous studies (9-12). Karimifar and colleagues (11) concluded that emotions play a major role in an individual's adjustment in various personal, family, and social contexts. A program, which modifies emotions, regulates strategies, and strengthens adaptive strategies can improve one's adjustment in a variety of areas. Emotion regulation helps the individual to have more perception and power to recognize his emotions. This condition increases one's capabilities in establishing emotional relationships, examining environmental events, and expressing empathy. Thus, one would acquire the necessary psychological requirements for social adjustment (34).

The results of this study also supported the direct negative effect of self-criticism on self-compassion. Yousefi Moridani and colleagues (13) focused on university students. They found that in the students involved in a close relationship, self-criticism, as a personality trait vulnerable to burnout, was associated with shyness and self-compassion. In addition, the study of Ghezelsefloo and colleagues (35) on graduate students indicated that deterministic thinking, one type of cognitive errors and distortions, was negatively related to self-compassion. According to this work, when cognitive distortions, such as deterministic thinking, self-criticism, and rumination are corrected, the level of compassion for oneself and others would increase. Non-compliance of personal criteria and

internal requirements due to the lack of self-awareness, pessimistic self-judgment, and negative thoughts are among the characteristics of self-critical individuals. Hence, self-criticism is seen as a form of internal harassment, which is stressful and debilitating. It can reduce compassion for oneself and others.

Furthermore, the present paper supported the direct negative effect of self-criticism on social maladaptation. It should be noted that social maladaptation was measured through Social Growth Scale. In fact, lower scores on this scale show higher social maladaptation. This finding is consistent with those of Yousefi Moridani and co-workers (13), Malekpour and co-workers (14), and Rajabi and Abasi (15). Rajabi and Abasi (15) found that individuals' self-criticism and anxiety in social situations caused internal shame and affected their social behavior. In addition, Malekpour and co-workers (14) stated that self-attraction, inconsistent perfectionism, and self-criticism were the main variables affecting depression (a disorder, which underlies maladaptive behavior in various social situations). In fact, individuals with self-criticism have low self-disclosure in their interpersonal relationships, are less intimate in their close relationships, and shoulder less responsibility. These individuals experience their daily interactions unfavorably, and others would judge them as unlovable. Individuals with self-criticism try to improve their social status even at the cost of sacrificing their friends. Even if their friends oppose them, they seek redress. All together, these characteristics reduce the adjustment of individuals in different situations (social situations) (27).

Moreover, the results indicated that self-compassion had a direct positive effect on social incompatibility. This finding is consistent with that of previous studies (19-21). Moran and colleagues (19) by studying boy and girl students found that the ability to solve social problems and self-compassion predict social adjustment in adolescents. Individuals with high self-compassion have more mental health than those with low self-compassion because the inevitable pain and the feeling of failure, which everyone experiences are perpetuated for them by a brutal self-criticism, a sense of isolation, and an extreme assimilation of thoughts and emotions (36). In addition to protecting an individual from negative mental states, self-compassion plays a role in strengthening positive emotional states. For instance, self-compassion is associated with emotions, such as social bonding and life satisfaction. It helps satisfying basic needs for autonomy, self-efficacy, and communication with others (29). Self-compassionate

individuals are kind to themselves and others, do not have pessimistic judgments about themselves and others, and create supportive social relationships. Thus, they compromise and adapt in their social relationships, which plays a helpful role in their social adjustment.

Regarding the indirect effects, the results implied that self-compassion mediated the relationship of emotional regulation and self-criticism with social incompatibility. Accordingly, emotion regulation and self-criticism directly and through the mediation of self-compassion affected the social incompatibility of boy and girl high school students in Ahvaz, Iran. In other words, emotion regulation strategies reduced the level of social maladaptation of boy and girl high school students through increasing their self-compassion level. Furthermore, self-criticism increased their social incompatibility through reducing the students' self-compassion. According to the results of simultaneous examination of boys' and girls' models, there were no significant differences between boys and girls in terms of direct paths.

Similar to other studies, this work had some limitations, including the statistical population limited to high school students in Ahvaz, the limitation of structural equation modeling in confirming causality, and the limitation of the use of self-report questionnaires.

5. Conclusion

In sum, this study emphasized the importance of emotion regulation, self-criticism, and self-compassion in predicting social maladaptation in high school students in Ahvaz. According to the results of the present work, it is suggested that 1) courses and workshops be conducted to teach students how to regulate emotions in schools effectively; 2) brochures and catalogs on different emotions and the way to organize and manage them be prepared to increase the level of the students' awareness; 3) courses and workshops in the field of self-criticism be held; 4) self-compassion training and compassion-based therapy be included in schools and counseling treatment programs; 5) the studied variables be measured prior to the implementation of the training courses so as to identify the students who do not have the desired level in these variables and provide them with necessary training courses and 6) some training courses be held for teachers, principals, and students' parents since their awareness and assistance can affect the effectiveness of the courses.

In order to expand the present study, further studies are suggested. First, the current research can be replicated to produce clearer and more practical findings by comparing the results. Second, to examine the students' social incompatibility, the use of observation or interview in the school context are recommended. The last not the least, other cognitive, emotional, and social variables affecting social maladaptation can be investigated in future studies.

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Ethical Approval

The Ethics Review Board of Islamic Azad University of Ahvaz, approved the present study with the following number: IR.IAU.AHVAZ.REC.1399.120. Also, written informed consent was obtained from the participants.

Conflicts of interest: None declared.

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