

## Original Research

### Grief: Normal and Pathological Variants after Death of a Loved One

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#### Abstract

**Background:** Loss of loved ones is one of the most inevitable and distressing life events to which every individual responds in different ways.

**Methods:** In this study, grief was considered in situations of loss, indicating the way people react when exposed to such grief. The research was conducted in two stages. In the first stage, 30 subjects (15 healthy people and 15 with bereavement disorder) who had lost their loved ones in the past 6 years were studied. In this stage, the effective factors in the development of persistent complex bereavement disorder were investigated. Then, in order to change these constructs, the compassion focused therapy was performed on fifteen patients with bereavement disorder. Samples were selected through purposive sampling. In this research, the scales of defense mechanism, integrative self-knowledge, and self-compassion were used.

**Results:** The result of this study illustrated that people with grief disorder and healthy people have a significant difference in terms of their defense mechanism, integrative self-knowledge and self-compassion.

**Conclusion:** Furthermore, the compassion-focused therapy increased mental health in patients and cured nine of them.

**Keywords:** Persistent complex bereavement disorder, Self-compassion, Integrative self-knowledge, Defense mechanisms.

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## Introduction

Loss is a common universal phenomenon which everyone has to experience at some time in their life. In psychological consultancy and psychotherapy, every day, the problems that people suffer due to being deprived of something or after experiencing separation, are met (1). A special situation is the death of a loved one; special because it wholly affects a human being's functioning (somatic, emotional, cognitive, social and spiritual spheres). Bereavement is a very complex process characterized by a large variety of feelings, their intensity and dynamics (2).

Grief can be evaluated as a position which shows how we deal with a loss (3). Loss of a loved one may cause human beings to be confronted with a lot of challenges (4) and considerable distress over time (5). In the latest edition of the Diagnostic and Statistical Manual of Mental Disorders (2013), a disorder called Persistent complex bereavement disorder is addressed as "conditions for further study" (6). As PCBD is a hybrid disorder, the specific criteria for which can be traced back to several primarily adult schools of thought regarding the primary distinguishing features of maladaptive grief, including pathological grief (7), prolonged grief disorder (8), and complicated grief (9). Instead of adopting the name of any previously studied grief construct (e.g., complicated grief, prolonged grief disorder, traumatic grief), a new name, Persistent Complex Bereavement Disorder, was selected for the newly proposed disorder to emphasize its distinct nature

### Persistent Complex Bereavement Disorder

The PCBD diagnosis specifically consists of the five criteria and it is diagnosed twelve months after the death of a loved one (6). Criterion A consists of a precipitating bereavement (the death of someone with whom the person had a close relationship). Criterion B consists of symptoms of separation distress, whereas Criterion C is comprised of symptoms of reactive distress and symptoms of social/identity disruption. Criterion D requires the clinical judgment that the distress causes functional impairment in developmentally

salient life domains, and Criterion E requires the judgment that the profile of grief reactions is out of proportion or inconsistent with the group (e.g., cultural, religious) to which the person belongs.

a meta-analysis of studies relying on a slightly different operationalization of disturbed grief—named Prolonged Grief Disorder (PGD) as put forth by Prigerson et al. (2009)—suggests that PCBD occurs in approximately 10% of bereaved people across different samples (10). Although there is limited research on PCBD, Some studies have shown that despite the similarities between this disorder and depressive disorders and post-traumatic stress, unique characteristics distinguish this disorder from other similar ones and give it a separate identity

(11).

Many researchers agree that the difference between normal grief and pathological grief is relative and depends on the degree and intensity of the reaction (12). Normal grief differs from the complicated or prolonged grief disorder in that normal bereavement is not persistent, not as intense, is not disabling or life-altering and is not experienced as a severe threat by the bereaved individual. Factor analytic studies suggest that the symptoms of complicated or prolonged grief are a unitary construct distinct from the more transient symptoms of depression and anxiety that characterize normal bereavement (13).

Individuals may deal with the bereavement using blaming, distortion, denial or suppressing their inner experience; since the loss has only occurred to them, they may exclude themselves from others and may not be able to manage the heavy emotions that it causes (DSM-5, 2013). Given the fact that, admission, experience, and non-denial of bereavement help the person to be adapted, the question is what factors and constructs contribute to this admission. By looking at definitions and functions of constructs like defense mechanisms, self-compassion and integrative self-knowledge can be considered as effective factors in this regard.

### Defense mechanisms

Defenses mechanisms prevent successful completion of grief by widening, intensifying and the tendency to continue grieving (14). Any kind of process that reduces or prevents pain due to grief is considered a defense. In fact, defensive mechanisms that are self-deceptive in their normal state, are of self-destructive nature in the pathological case and distort the internal and external realities (15), and cause pathological behavior in people (Eccleston, 2018) Therefore, if the use of defense mechanisms prevents the experience of painful thoughts and feelings, it will lead to the inflexibility and stabilization in the stages of grief and distort the process of grief and reveal pathological symptoms (12).

### **Integrative self-knowledge**

Given that grief is a painful experience, people may escape from this experience in different ways. Experiencing this process and approaching it enable the person to see the painful experience from a wider angle and become aware of the internal and external processes that have happened to them, which is a kind of self-knowledge. Therefore, given the painful experience of grief and the functioning of defense mechanisms, which is a sort of deviation from reality, this concept is tied to another important structure called "Integrative self-knowledge". Integrative self-knowledge is a combination of reflective and experiential self-knowledge and means integration of experiences in the past, present and future, order to better adaptation and self-empowerment (16).

### **Self-compassion**

When discussing grief, it has been said that the chance of escaping from the experience of loss is likely to cause a bereavement disorder. On the one hand, it can be said that the "integrative self-knowledge", prevents the formation of bereavement disorder. On the other hand, when integrated and viewed without distortion the experience still requires the ability of non-judgmental and caring attention to unpleasant experiences of life. This view is operationalized in a structure called "self-compassion" (17). Self-

compassion has been defined as a kind and caring attitude towards oneself when experiencing suffering (18).

Self-Compassion entails being kinder and more supportive toward oneself and less harshly judgmental. It involves greater recognition of the shared human experience, understanding that all humans are imperfect and lead imperfect lives, and fewer feelings of being isolated by one's imperfections (19). It entails mindful awareness of personal suffering and ruminating less about negative aspects of one's life experience (20). This kind of view will prevent self-blame, feelings of shame, guilt, and rumination associated with PCBD in a person (DSM-5, 2013) and help him to achieve reconciliation and acceptance of the event (21).

The results of some studies have shown that the self-compassion focused therapy enables one to act in a healthy way while confronting with the painful events in the life evidently; there is a statistically significant relationship between the low self-compassion and the severity of complicated grief symptoms (22). In addition, it also contributes to strengthening of the positive attitudes to protect a person from a negative emotional state. This positive effect is not the same as avoiding the negative feelings, but simply means experiencing the less anxiety while confronting with the unpleasant events or weaknesses (23). Studies investigated the relationship between integrative self-knowledge and self-compassion. In these studies, a high correlation was found between self-compassion, mindfulness, and integrative self-knowledge (24). What is more, Self-

compassion, by lessening the degree of blame on oneself reduces the need for individuals to engage ego-defensive mechanisms (25).

As it was mentioned before, the tendency towards defense mechanisms is associated with the reality alteration, and on the other hand, the disruption in integrated self-knowledge and the inability to have a positive look for accepting the realities can in turn lead to deviation from reality and resorting

to defense mechanisms. Therefore, it can be concluded that by launching defense mechanisms, when facing the death of loved ones, people who have less integrative self-knowledge and self-compassion, fall into the reality distortion which makes them escape fully experiencing the death of the loved ones and this leads to the continuation of the grieving process. Considering the significance of the phenomenon of grief and its consequences on the health of individuals, investigating the role of defensive reactions, integrative self-knowledge and self-compassion in this process can help us discover possible ways to prevent grief disorders. Furthermore, it seems the great importance of self-compassion and its impact on the level of integrative self-knowledge and defense mechanisms play an important role in absorbing the process of grief in a person's psychological structure and thus, by experiencing grief in full and without distortion, the time and intensity of a person's grief will be reduced.

The present study was conducted in two stages. In the first stage, by using causal-comparative method, the structures of defense mechanisms, integrative self-knowledge and self-compassion were compared in a group with the persistent complex bereavement disorder and a group without the disorder. In the second stage, in order to complete the research, self-compassion focused therapy was carried out on fifteen people with bereavement disorder, who were willing to participate in this study to examine whether changes in these structures in people with bereavement disorder will improve the grief. Therefore, the goal of the present study is to investigate the role of grief preserving factors in patients with the Persistent complex bereavement disorder, as well as the role of compassion-focused therapy in curing these individuals. In this first part, the researcher's hypothesis was that people with Persistent complex bereavement disorder use immature and neurotic defense mechanisms and their self-compassion and integrative self-knowledge are less than those in the control group. Also, in the second part, the

hypothesis that self-compassion treatment improves people with bereavement disorder has been investigated.

### **Compassion focused therapy (CFT):**

All bereaved people benefit from compassionate support. For many people, grief after losing someone very close is among the most intensely painful experience they have had in their lives (26). Self-compassion refers to healthy ways of relating to oneself in times of suffering, whether suffering is caused by general life difficulties, perceived inadequacy, or failure. Self-compassion allows individuals to accept themselves as they are, including the limitations that make them human. Informally, it is defined as treating yourself with the same care with which you would treat a good friend who is struggling. Self-compassion helps people to better tolerate painful emotions such as grief, despair, anxiety and anger (20).

It has been suggested that Self-compassion is beneficial for individuals grieving a loss (27). Based on previous findings, there is statistically significant relationships between low self-compassion and the severity of complicated grief symptoms. (18). Findings suggest that people with more self-compassion experience less severe psychopathology, in part because these people are less strongly inclined to engage in ruminative thinking related to the disappearance. Strengthening a self-compassionate attitude using, for instance, mindfulness-based interventions may therefore be a useful intervention to reduce emotional distress associated with the disappearance of a loved one (28). Compassion-Focused Therapy, which is designed to promote full attention to the experience of physical symptoms and emotional discomfort or suffering, is very useful in experiences of loss and promote integration (29).

**Compassion-Based Training Protocol:** This training protocol was developed based on Gilbert's (2009) research activities. Summary of training sessions related to this protocol are as follows: Session one: Introducing and establishing

a therapeutic relationship, getting to know the participating members, asking members' purposes for attending meetings, outlining the general purposes of the training sessions, describing workshop training, and providing workshop rules; Session two: identifying unhelpful strategies for self-protection In the absence of the dead person, facilitating use of more helpful strategies, and training an open and compassionate management of grief-related distress; Session three: Understanding the concept of guilt, the difference between self-attack and guilt, explaining the characteristics of the self-suffering person and introducing self-suffering imagery technique, Session four: Attention to self-suffering identity with emphasis on the lack of judgment and courage, assessment on anger, familiarity with its functions; Session five: Exploring the roots of fear of compassion, teaching compassionate practice, and receiving compassion from them; Session six: : Reconstructing hard emotional memories with an emphasis on taking a compassionate identity and further nurturing of the relief system and creating interpersonal relationships ; Session seven encouraging the mindful approach to the experience of loss, helping the participants to experience contradictory emotions towards the lost one, and helping them to plot the narrative of their lives, including their loss experience.

Session eight: Overview of the topics in prior session, investigating educational concepts and types of homework, investigating the views of the survey participants about the effectiveness of workshops and assignments and the changes made in them (30).

## Methods

### Study 1

In the first part of the study, the difference between the two groups of 15 participants with and without Persistent complex bereavement disorder was investigated. All participants in the research had lost a close member of their family in the past 6 years. 15 People diagnosed with a Persistent complex bereavement disorder at a psychiatric center, and also 15 people without the

disorder who were eligible for participation in the study were selected from the general population. The method of this part of the research was causal-comparative. This means that all the participants had lost a first-degree relative over the past six years, but one group had a complex and persistent grief disorder and such condition was not observed in the other one. at this stage the inclusion criteria was set for participants as: no more than 6 years should have passed from the experience of loss, and the lost one must have been a significantly close relative of the participant.

The sample consisted of 30 people (18 women and 12 men) with an average age of 36 and a standard deviation of 15. They were selected through purposive sampling. Participants in the two study groups were matched in terms of age, educational level, the number of years of losing a loved one and their relation to the lost person.

Each participant was first measured by interviewing them to make sure whether a bereavement disorder exists or not and then they were tested by the responses they gave to the scales given to them. The members of the healthy group consisted of ten women and five men, two of whom had experienced the death of their sister or brother; One had experienced the death of his child, two the death of their spouse and ten the death of their parents. It had been two to six years since they had lost a loved one. The unhealthy group consisted of seven women and eight men, and their other characteristics, such as their relationship with the dead person and the number of years the dead person was lost, were similar to the healthy group.

### Study 2

In the next stage of the research, in order to treat fifteen people diagnosed with Persistent complex bereavement disorder using Diagnostic and Statistical Manual of Mental Disorders, group therapy based on self-compassion was carried out (6). Also, a control group was included in the study to determine the impact of therapy more accurately. The control and experimental groups, which both had grief disorders, were selected from



psychological clinics. Although the selection of these individuals was random, their assignment to the experimental and control groups was not random, but convenience.

Participants in the two study groups were matched in terms of age, educational level, the number of years of losing a loved one and their relationship with the missing person. The method of this part of the research was quasi-experimental research. In this method, the group was evaluated before the treatment by stage I instruments, and after eight sessions of group therapy, they were reevaluated for the variables studied. The treatment was also performed by an experienced therapist in the field of self-compassion with a master's degree in the clinical psychology.

### Measures

In this survey, by interviewing, each sample was first measured whether there was a bereavement disorder. The interview materials were prepared according to the criteria proposed in DSM 5 for measuring the Persistent complex bereavement disorder and it was performed by a professional psychotherapist. The individuals should have met at least one case of B criteria, six cases of the C, D, and E criteria in order to be diagnosed with a complex and persistent grief disorder by the interviewer. Then, they responded to the scale they were given. Each scale was explained at the beginning; therefore, it was the same for all participants. Each of the scales and corresponding explanation is given below.

**Self-compassion Questionnaire (Neff, 2003a):** This scale consists of 26 items and their response is in a 5-point Likert scale from 1 (almost never) to 5 (almost always). This scale measures three bipolar components in the form of six subscales of self-kindness, self-judgment (reverse), Mindfulness, over-identification (reverse), common humanity, and isolation (reverse). Neff (2003a) evaluates its validity and reliability. In this study, the internal consistency of the scale is high [31].

**Integrative self-knowledge (ISK) Questionnaire:** The Adaptive Self-knowledge Scale was

developed by Ghorbani et al. (2008) [32] and has 12 items that are responded with a five-point Likert scale. The validity and reliability of this scale have been confirmed in several studies. In these studies, the average alpha coefficient of this scale was 80 %.

**Defensive Style Questionnaire (DSQ):** This scale was developed by Andrews et al. in 1993 [33]. The questionnaire consists of 40 items which, on a 9-point Likert scale (strongly disagree to strongly agree), measures 20 defense mechanisms in terms of three mature, Neurotic and immature defensive styles. A score between 2 and 18 is given in each defense mechanism. In each of the defensive mechanisms, if the individual score is more than 10, it means the individual's use of that mechanism. In general styles, the average score of an individual in each style is determined and compared with the average person's score in other styles. Cronbach's alpha coefficient s described by Andrews et al. (1993) satisfactory for the questions of each of the defensive styles.

### Results

#### Study 1

In the first part of the study, we used multivariate analysis of variance to determine the difference between the research variables in the two groups. As you can see in Table 1, individuals who are suffering from bereavement disorder use more immature defense mechanisms ( $P = 0.00$ ) along with less mature mechanisms ( $P = 0.00$ ). Also, the mean scores of the samples indicate that the healthy people are more kind with themselves ( $P = 0.00$ ), they are more mindful ( $P = 0.00$ ), they have more common humanity ( $P = 0.00$ ) and in total, their self-compassion is high ( $p = 0.00$ ). Also, the table below shows that healthy people have self-knowledge more than that of the patient group ( $p = 0.00$ ). In the second part of the study we used analyze of covariance to determine if the compassion- focused therapy was effective or not. Table 2 shows the mean and standard deviation of the research variables in pre-test and post-test in the control and experimental groups. As shown in the table, the mean scores of the experimental

group increased significantly in terms of self-compassion components in the post-test. Regarding defense mechanisms, a reduction in the immature defense mechanism and an increase in the mature defense mechanism and no variations in the neurotic defense mechanism were observed. There is no significant variation regarding self-knowledge. Table 3 shows the results of the multivariate analysis of covariance to investigate the effects of the intervention on the self-compassion components. According to the results in the table, the intervention only had a significant effect on self-kindness ( $F(1, 27) = 21.77$  &  $P = 0.0001$ ) and the relative effect size of the study (Cohen's  $d$ ) is large. Table 4 summarizes the results of the one-way analysis of covariance to investigate the effect of intervention on mature, immature and neurotic defense mechanisms. According to the results in the table, intervention had a significant effect on mature defense mechanisms ( $F(1, 27) = 16.30$  &  $P = 0.0001$ ) and the relative effect size of the study (Cohen's  $d$ ) is moderate. Also intervention had a significant effect on the reduction of immature defense mechanisms  $F(1, 27) = 5.63$  &  $P = 0.03$ ) and the relative effect size of the study (Cohen's  $d$ ) is moderate. Intervention had no significant effect on neurotic defense mechanisms ( $F(1, 27) = 0.04$  &  $P = 0.85$ ). Table 5 presents the results of one-way analysis of covariance in order to investigate the effect of intervention on self-knowledge. According to the results in the table, the intervention had no significant effect on self-knowledge ( $F(1, 27) = 0.90$  &  $P = 0.35$ ). In addition, results obtained from the interview using the DSM-5 showed that before treatment, people with a complex and persistent grief disorder had 12 symptoms of DSM diagnostic criteria on average, while after treatment, the mean of these symptoms decreased to 6.4.

### Discussion

Undoubtedly, the death of loved ones is one of the most stressful events that negatively affects human beings and their lives (34). However, in life, which is full of painful and inevitable events,

it seems that the way in which people deal with these painful events is more important than its actual occurrence. Because the way an individual reacts to such events determines whether this experience is resolved in its psychological structure or becomes a mental disorder.

The findings of this study (in the first stage) showed that healthy people use significantly more mature defense mechanisms and less immature defense mechanisms than diagnosed patients. The results of this study showed that type of defense mechanisms can be effective in adaptability and an ability to cope with the loss. In fact, mature defense mechanisms can help the individual to experience the grief in a more normal way, which in turn, leads to recovery.

Acceptance the mental pain of loss leads to a reassessment of the relationship between the individual and deceased person, and as a result, the ego's capacity to endure grief increases (35). It has been proven that mature defensive mechanisms contribute to personal health after experiencing trauma (36) and his adaptation to distressing situations in life (37).

Also, the results of the first study showed that there is a significant difference between the integrative self-knowledge of healthy and diagnosed patients. The results of this study showed that integrative self-knowledge makes a person in mourning go through the natural process of grief. This process makes the mourner aware of his emotions and becomes aware of them at times in the future (38). People with high integrated self-knowledge, by having knowledge on mind, emotional, and behavioral processes in every moment, and also on the effects of past and the expected future in the present experience, can achieve a consistent perspective from what they lived so far (39). Indeed, in the light of integrative self-knowledge, one can resolve the experience of grief in his mental structure and find a place for this painful experience in their mental structure. The results of this study are consistent with Ghasemipour et al. (2013) [40]. They found that mindfulness and integrative self-knowledge are

both domains of self-knowledge that have a positive and significant correlation with health variables.

### Conclusion

Furthermore, the results of this study showed that the three components of self-compassion, self-kindness, common humanity and mindfulness have a positive relationship with adaption after the death of loved ones. In fact, the person with self-compassion is in contact with all his suffering with an open mind and has a slight tendency to escape or avoid pain (41). For many reasons, self-compassion can be considered an effective strategy to control anxiety, when painful and distressing emotions cannot be avoided. Instead, one must be aware but kind, with understanding, and with a feeling of shared human experience. Therefore, negative emotions turn into a much more positive emotional state (42). The results of this study are consistent with the findings of Thompson et al. (2008) [43]. By examining 210 people who had the criteria for traumatic experience, they found that people with higher self-compassion used fewer avoidance strategies and thus did not face post-traumatic avoidance strategies and had higher mental health.

The results of compassion focused therapy on fifteen patients with grief disorder (in the second stage), showed that there was a significant difference between individuals' self-compassion and types of defense mechanism before and after the treatment. What is more, nine patients no longer met the inclusion criteria after seven treatment sessions. It can be said that these variables lead to a balanced and clear awareness of the present experiences and although the painful aspects are not ignored, they do not occupy the mind continually (44). In fact, by helping people to see their inner conflicts and encouraging the corrective emotional experience of the relationship between patient and the deceased person, this treatment allows a person to find a place in his mental structure to resolve the grief experience and a new window is opened which enables the grieving individual to understand the

new relationship between himself and the lost loved one.

One of the limitations of this study is that the comorbidities of patients are not measured. It should also be noted that due to some limitations, the researcher was not able to randomly place the members in the experimental and control groups and could not follow up the effect of treatment on the experimental group after a relatively long time.

### Compliance with Ethical Standards

Funding: no organization or government has given money for carrying out this research. This study was funded by our personal budget.

### Conflict of interest

Author A declares that he has no conflict of interest. Author B declares that she has no conflict of interest. Author C declares that he she no conflict of interest.

### Ethical approval

all procedures performed in studies involving human participant were in accordance with the ethical standards of the institutional or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

### Informed consent

informed consent was obtained from all individual participants included in the study.

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## Tables:

Table 1: Pretest: bereavement disorder (G1) healthy (G2)

Variables	Mean		SD		F	df
	G1	G2	G1	G2		
Mature defenses	38.00	47.00	14.00	9.00	4.00	1
Immature defenses	111.00				1.00	1
Neurotic defenses	99.00		29.00	18.00	0.00	1
Self- knowledge	46.00	44.00	13.00	11.00	0.07	1
Self-compassion	36.00	47.00	10.00	7.00	11.00	1
Self-kindness	75.00	89.00	10.00	8.00	0.00	1
Common humanity	28.00	34.00	4.00	4.00	13.00	1
Mindfulness	24.00				0.00	1
	27.00		6.00	3.00	3.00	1
	22.00				0.00	1
	27.00		3.00	3.00	14.00	1
					0.00	

Table 2: Mean and standard deviation of variables in control and experimental groups (pretest and posttest)

Variables	Control group (N = 15)		Experimental group (N = 15)	
	Pre test	Post test	Pre test	Post test
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Self-kindness*	14.80 (5.32)	17.73 (5.78)	29.60 (9.32)	33.80 (9.22)
Humanity*	26.13 (4.47)	29.40 (7.42)	26.00 (4.49)	29.20 (7.48)
Mindfulness*	24.93 (6.84)	27.40 (5.58)	24.20 (4.26)	30.60 (5.17)
Self-compassion (total score)	68.07 (10.17)	71.93 (13.51)	80.40 (15.72)	94.00 (20.79)
Immature**	103.33 (24.55)	113.73 (20.97)	107.80 (14.92)	102.73 (22.75)
Mature **	48.73 (14.00)	46.33 (13.18)	46.20 (14.14)	51.40 (7.98)
Neurotic**	47.93 (12.04)	52.80 (9.41)	48.60 (5.30)	52.60 (9.48)
Self-knowledge	44.80 (8.95)	46.47 (9.81)	42.80 (7.81)	43.20 (6.33)

\* Self-Compassion subscales \*\* Defensive Mechanisms subscales

Table 3: Multivariate analysis of covariance to examine the effectiveness of treatment in improving the scores of self-compassion subcomponents

Source	Self-compassion	SS	df	MS	F	P-Value	Cohen's d
Covariates	Self-kindness	237.49	1	237.49	4.52	0.04	1.95
	Humanity	373.32	1	373.32	8.54	0.01	0.03
	Mindfulness	362.15	1	362.15	21.77	0.0001	0.13
	Self-kindness	1085.04	1	1085.04	20.63	0.0001	2.09

Between group	Humanity	78.95	1	78.95	1.81	0.19	0.03
	Mindfulness	0.14	1	0.14	0.01	0.93	0.59
	Self-kindness	1419.84	27	52.59			
Error	Humanity	1180.68	27	43.73			
	Mindfulness	449.05	27	16.63			
	Self-kindness	3593.37	29				
Total	Humanity	1554.30	29				
	Mindfulness	888.00	29				

**Table 4: One way analysis of covariance to examine the effectiveness of treatment in improving the scores of defense mechanism subcomponents**

Defensive Mechanisms	Source	SS	df	MS	F	P-Value	Cohen's d
Mature	Covariate	2745.01	1	2745.01	128.25	0.0001	0.22
	Between group	348.86	1	348.86	16.30	0.000	0.50
	Error	577.92	27	21.40			
	Total	3515.47	29				
Immature	Covariate	6173.11	1	6173.11	23.06	0.0001	0.18
	Between group	1506.71	1	1506.71	5.63	0.03	0.47
	Error	7228.75	27	267.73			
	Total	14309.37	29				
Neurotic	Covariate	719.68	1	719.68	10.94	0.003	0.07
	Between group	2.38	1	2.38	0.04	0.85	0.02
	Error	1776.32	27	65.79			
	Total	2496.30	29				

**Table 5: One way analysis of covariance to examine the effectiveness of treatment in improving the scores of self-knowledge**

Source	SS	df	MS	F	P-Value	Cohen's d
Covariate	1317.78	1	1318	60.27	0.000	0.23
Between group	19.72	1	20	0.90	0.35	0.40
Error	590.35	27	22			
Total	1988.17	29				