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EFFECTIVENESS OF LAUGHTER YOGA ON STRESS (SUBSCALES OF STRESS THE FRUSTRATION AND AGGRESSIVENESS) AND DEPRESSION PATIENTS WITH MULTIPLE SCLEROSIS (MS)

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ABSTRACT

This study aimed to investigate effects of Laughter Yoga on stress and depression in patients with MS in MS's community. It was study population consisted of MS patients of them 30 were selected by convenience sampling method. After the test, the experimental group received 10 sessions, received Laughter Yoga techniques. After training, both groups were evaluated. To measure the variables in the pre and posttest and the Beck Depression Inventory questionnaire response to stress (SRI), (out of 7 subscales of this questionnaire, 2 subscales it: frustration and aggression) and a total score of stress were assessed. The results showed that laughter yoga techniques, stress, depression, and aggression in patients with multiple sclerosis patients have decreased, but the failure rate has not changed. The results of this study can be used alongside drug treatment strategies as complementary non-drug treatments to improve cognitive functions in MS patients.

Keywords: *Multiple Sclerosis, Laughter Yoga, Stress, Depression*

INTRODUCTION

Multiple sclerosis (MS) is disease of nervous system at an early age or younger with local destruction of myelin in the central nervous system begins fragmentation and irregular with periods of remission and relapse associated symptoms. In the patients, many psychological reactions have been seen among them high prevalence of depression and stress (Marci, 2004; Rizvi, 2004). Results of study on MS patients in Japan showed that 50 to 60 % of these patients experienced depression. Often, multiple sclerosis is related to more severe symptoms of stress (Lotfi, 2007; Momeni, 2009).

Recent studies concentrated on the relationship between stressful life and initiation progression and exacerbation of the disease. This stress during the course of the disease can be associated with individual compatibility with their existing conditions, such as taking into account the financial means for treatment, finding jobs as well as other factors that are consistent with the current inability to cope with the symptoms of visible and invisible disease (Sarazf, 2005).

MS patients also suggest that the psychological aspects of disease are the most uncomfortable and they have the most terrible problems because they always stress that can lose mental and spiritual (Ackerman, 2000; Judicibus, 2007).

Experts believe that mental health problems like depression and stress that often comes with MS is due to the loss of myelin some areas of the brain that controls emotions and so they have another fight which must act on the problems and early signs of the disease be considered. In some cases, mental disorder due to the frustration that comes as a result of disease or the side effects of medications used in the treatment of multiple sclerosis and thus creates the symptoms mentioned are secondary and tertiary (Abramovits, 2004; Sluder, 2002).

Norman Kazins in his book Anatomy of an illness in 1979 published a story with a dangerous disease and discovered the positive effects of laughter and other positive emotions described in the fight against it. He found that 10 minutes of laughter, pain for two hours of relief. Norman affair shook the scientific community and inspired many researchers in the field.

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Madan Kataria (2002) combines the best practices yoga with laugh in way that enhances health, reduce stress and increase vitality in different level of physical, mental, and behavioral and numerous beneficial effects on body and mind (Mohr & Cooks, 2001; Beckman, 2007). Laughter Yoga is a form that was invented by Kataria the form of laughter that followed and with deep breathing relaxation techniques of yoga are performed (Gildard & Kozlowski, 2012; Kasper *et al.*, 2013).

For those who find it hard to laugh at one of the appropriate procedures to follow yoga laughter. Laughter Yoga is the most important principle that people learn that do not need reason laugh to a particular topic. Laughter Yoga techniques, they learn that sometimes people laugh without reason and conscious laugh practice. World Laughter Yoga and Laughter clubs is another principle that is said to be based on movement, excitement Each session of Laughter Yoga creates a combination of deep breathing exercises, stretching, yoga, laughter triggers and revive the spirit of childlike playfulness (Shahidi, 2008).

Laughter Yoga as group, runs and that's why that strengthen social relationships, intimacy and expression of being part of a group. Group laughter exercises so that as it passed entirely based on the principles of yoga can be done with the aim of eventually combining the biological balance is physical and mental. Laughter Yoga clubs to identify factors hindering people laugh and give person and other members reduce negative factors. In each of Laughter Club, Laughter Yoga is offered a certain style for the different stages of how to position the area where the club is located, and also depends on the tastes of club directors (Rain, 2014).

Extensive research into the effects of Laughter Yoga exercises have focused on psychological factors and biological factors. In Japan (Cho & Hunji, 2013) the effects of Laughter Yoga depression, cognitive function and sleep quality in older people surveyed and using the Geriatric Depression Scale GDS, test summary psychological state (MMSE), form 36-item sleep quality SF-36 and insomnia index (ISI) was performed before and after training.

The results were significant differences between the characteristics of the experimental and control groups before and after treatment showed that laughter therapy. A study by Express (2013) was conducted on prisoners that results from the effects of yoga on stress reduction, stress and increased aggression in the experimental group and also to pay more attention to the environment. Bammer (2011) in a study investigated effects of laughter therapy techniques to stress and fatigue in women after their birth.

After two weeks of fatigue in women using self-report questionnaires and measured their stress levels of cortisol concentrations in milk were measured and the results reported a decrease in fatigue and depression in women. Also, Bennet (2006) showed in study effects of Laughter Yoga to reduce stress and decreased killer cell activity. Bennet also shows an increase in immune function upon receipt of laughter yoga. In Iran, similar studies have been conducted to study the effects of Laughter Yoga.

Seifi Zarei (2008) research on the effects of laughter therapy on blood pressure in patients with essential hypertension clinic has done. The results showed that laughter and sense of humor short and long term effects on blood pressure of 4-6 months and can be useful as a treatment to be used in essential hypertension. In this study, laughter therapy as a method of non-drug methods have been introduced Kataria with unique features such as easy, methods, safety and economy, and anyone of any age, gender and health status it can do the most important way to explain it is the social aspect of laughter therapy group runs and finds meaning in the presence of the audience. Ojaghi (2008) study showed that Madan Kataria's laughter therapy reduce the feeling of failure in first year high school girls aged 15. In another study, Shahidi (2008) examined the effects of laughter therapy and exercise therapy of Madan Kataria method to reduce depression and increase older women's life satisfaction showed that laughter therapy treatment compared with both depression and increase life satisfaction was effective in older women.

The main question in this study is whether use of Laughter Yoga techniques are effective stress and depression in patients with MS. According to the overall goal, the following hypotheses are tested:

1. Laughter Yoga techniques are effective in reducing depression in MS patients.
2. Laughter Yoga techniques are effective in reducing failures of MS patients.
3. Laughter Yoga techniques are effective in reducing aggression in MS patients.
4. Laughter Yoga techniques are effective in reducing MS patients' stress.

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MATERIALS AND METHODS

Method

Population, Sample and Methodology:

This research is part of the applied research and design of quasi-experimental was with two groups of experimental and control. In this scheme, dependent on the experimental and control groups in the pre-test were measured while only in independent tests can be used and in the finals of both the dependent variable was analyzed. All 234 women members of Multiple Sclerosis Society in 2014 formed study population.

Among the 55 people who had responded to tests of stress and depression were about 30 people who meet the criteria for selection and random sampling in two experimental and control groups (each group 15 persons). Patients were selected according to this criterion are: the suppression stage, independent of the wheelchairs, the least educated, the use of psychotropic drugs and other cognitive therapy during the study, aged between 20 and 40 years, participating in yoga classes and meditation of the project, lack of other acute or chronic disorders. After selecting subjects according to the criteria of inclusion subjects were tested by tools of evaluation. Group tests for 10 sessions of Laughter Yoga includes sessions of 30 minutes to 2 times a week, and during this period the control group, no did not receive the intervention. Laughter Yoga sessions based on practices Kataria was conducted as follows.

Table 1

First Meeting	1. Member familiar with each other, explain the program and the rules of group 2. Definition of laughter and its benefits 3. Perform deep breathing, touching and telling haha 4. peaceful exercise movements of the body and the head and neck 5. techniques good laugh 6. telling motto group laughter therapy, touching, smiling and looking at each other 7. task
Second Session	1. Talk about faith and trust in God 2. The deep breathing, touching and telling haha 3. Gentle exercise movements of the body and the head and neck 4. laughter teaching techniques Hello Hindi 5. telling motto Group, touching, smiling, and looking at each other 6. giving task
Third Session	1. Talk about having a positive attitude 2. The deep breathing, touching and telling hahaha 3. Gentle exercise movements of the body and the head and neck 4. Test technique silent laughter 5. telling motto Group, touching, smiling, and looking at each other 6. task
Fourth Session	1. Talk about living in the present 2. The deep breathing, touching and telling hahaha 3. Relaxation of the body, and exercise movements of the head and neck 4. Test laughter with mouth closed technique 5. telling motto Group, touching, smiling, and looking at each other 6. task
Fifth Session	1 talking about free from dependency and extremes 2. The deep breathing, touching and telling hahaha 3. Relaxation of the body, and exercise movements of the head and neck 4. Learn the techniques laugh average (decent) 5. telling motto Group, touching, smiling, and looking at each other 6. task

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Sixth Session	1. Talk about your laughing 2. The deep breathing, touching and telling hahaha 3. Relaxation of the body, and exercise movements of the head and neck 4. laugh swing training 5. telling motto Group, touching, smiling, and looking at each other 6. task
Eighth Session	1. Talk about studying and learning 2. The deep breathing, touching and telling hahaha 3. Gentle exercise movements of the body and the head and neck 4. Laughter Osho techniques or Eikson 5. telling motto Group, touching, smiling and looking at the 6. giving task
Ninth Session	1. Talk about optimism and wit 2. The deep breathing, touching and telling hahaha 3. Relaxation of the body, and exercise movements of the head and neck 4. Learn the techniques murmur of laughter with mouth closed 5. telling motto Group, touching, smiling and looking at the 6. task
Tenth Session	1. Talk about travel and tourism companies in the gala to keep morale 2. The deep breathing, touching and telling hahaha 3. Relaxation of the body, and exercise movements of the head and neck 4. Learn the techniques and hi Hindi laugh and lion's laugh 5. telling motto Group, touching, smiling and looking at the 6. task

Tools

Response to stress questionnaire: the questionnaire by mountains and colleagues in 2001 to investigate aspects of emotional, physical, cognitive and behavioral responses to stress made. Participants must be in a Likert scale of 5 degrees (no = score of 0 to completely = score 4) the extent to which each person will experience the symptoms listed. The questionnaire contains 39 words and 7 sub-scale response to stress (stress, anger, aggression, body building, depression, fatigue and failure) and a general stress is the sum of the following scale to evaluate. The validity of the questionnaire of 62 healthy subjects with an interval of two weeks is obtained. Test-retest reliability for the 7 subscales and total score of this questionnaire is very high between 69% to 91% and for the total score was 97%.

In Iran, few studies regarding efficacy of psychological stress were conducted psychometric questionnaires. Taghvaei (2010) psychometric properties of the stress response with sample of 92 students at Shiraz University. Test-retest reliability coefficients, split-half and Cronbach's alpha are as follow respectively, 75%, 93% and 90%. Concurrent validity with perceived stress questionnaire was 55% and between 72% and 87% respectively validity. To get to each sub-scale score enough points all statements relating to the following scale come together. Also, to get total score should be 39 words together. Higher scores indicate more severe response to stress.

Beck Depression Inventory:

The inventory for measuring depression in 1963 was developed by Beck Depression Inventory is a self-assessment test and be completed in five to ten minutes. The subjects must be on a four point scale from 0 to 3 to respond. It is in areas such as sadness, pessimism, sense of failure, guilt, sleep disturbances, loss of appetite and so on.

This means that it affects 2 of Article 11 of the understanding, two of flagrant behavior, physical symptoms and Article 5 of the interpersonal dedicated to semiotics. This questionnaire determines the varying degrees from mild to severe depression and scores range from a minimum of 0 to a maximum of 63. The total scores to determine the overall level of Beck Depression Inventory in accordance with the

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norms and the person who interpreted accordingly. Test-retest reliability of the test has been reported from 48% to 68% with mean of 86% (Beck, 1966). Ghasem Zadeh and colleagues reported its alpha coefficient of the questionnaire 97%.

Test-retest correlation coefficient of 74% and the 93% reported in the first edition of Beck Depression Inventory. Dobson and Mohammad Khani in Iran (2007), achieved Alpha's Cronbach 92% for outpatients and 93% of students. The test-retest coefficient within a week gained 93%. As well as to determine the internal consistency coefficient of 73% to 92%, with mean 86%.

RESULTS AND DISCUSSION

Findings

In Table 2 presented the mean and standard deviation of variables to distinguish between control and experimental groups.

Table 2: Mean and Standard Deviation of Variables in Control and Experimental Groups

Variable	Group	Number	Pre-test		Post-test	
			Mean	SD	Mean	SD
Depression	Pre-test	15	27.40	2.35	27.26	2.31
	Post-test	15	27.26	2.08	22.27	2.33
Failure	Pre-test	15	16.18	3.04	14.86	3.29
	Post-test	15	16.06	2.81	11.53	2.32
Aggression	Pre-test	15	11.06	4.62	10.66	5.12
	Post-test	15	8.93	1.62	5.53	2.55
Stress	Pre-test	15	33.8	4.16	31.06	4.00
	Post-test	15	42.2	3.78	41.28	3.78

As Table 2 of the control group pre-test and post-test stages in depression scores were 27.40 and 27.26 and mean of pre-test and post-test experimental group stages of depression, respectively, 27.26 and 22.28. Failure of the control group pre-test and post-test scores 16.18 and 14.86 respectively, and the mean scores of the experimental group pre-test and post-test failure is respectively 16.6 and 11.53. Mean's aggression in the pre-test and post-test scores of the control group, respectively are; 11.06 and 10.66 and mean of aggression in the pre-test and post-test scores of the experimental group 8.93 and 5.53. The mean of pre-test and post-test control group in stress scores was 33.8 and 31.06 and mean of experimental group pre-test and post-test scores of stress and depression, respectively, 42.2 and 41.28. In Table 3, the test results Levin equality of variances of both groups has been presented.

Table 3: Levine Test Results to Evaluate Homogeneity of Variance of the Studied Variables

Variable	F	df	df2	Sig.
Depression	2.58	1	28	0.12
Failure	0.15	1	28	0.52
Aggression	0.65	1	28	0.32
Stress	0.19	1	28	0.12

According to the results in Table 3, test results Levin equality of variances of two groups has been confirmed. Table 4 presented Kolmogorov-Smirnov test of normal distribution of variables in the groups.

Table 4: Results Kolmogorov-Smirnov Test for Normal Distribution of Scores

Variable	Z	Number	Sig.
Depression	2.10	30	0.44
Failure	1.86	30	0.73
Aggression	2.07	30	0.63
Stress	1.77	30	0.85

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As can be seen in Table 4, assuming normal distribution of scores on the variables research has been confirmed. In Table 5, the results of analysis of covariance for the first hypothesis, the effect of Laughter Yoga depression is presented.

Table 5: The Results of Analysis of Variance to Compare Mean Scores of Depression by Controlling the Effect of Pre-Test

Sources of Change	Sum of Square	df	Mean of Square	F	Sig.	Eta
Pretest	70.17	1	70.17	24.55	0.000	0.47
The main effect (treatment)	185.21	1	185.21	14.81	0.000	0.70
Error	70.15	27	2.85			

As shown in Table 5 by controlling the pre-test, test and control groups in terms of depression among patients there was no significant difference ($F = 81.14$), so the hypothesis is confirmed. In other words, using laughter therapy according to mean of depressed patients in the experimental group after test, compared to mean of the control group patients, causes depression and has been tested. The impact or difference is equal to 70%. In other words, 70% individual differences in grades depression are effects of laughter therapy program. In Table 6, the results of analysis of covariance for the second hypothesis, the effect of Laughter Yoga is offered on reducing failure.

Table 6: The Results of Analysis of Variance to Compare Mean Scores of Failing to Control the Effect of Pre-Test

Sources of Change	Sum of Square	df	Mean of Square	F	Sig.	Eta
Pretest	166.79	1	166.79	74.23	0.000	0.73
The main effect (treatment)	129.04	1	129.04	57.42	0.13	0.06
Error	60.66	27	2.04			

As shown in Table 6 by controlling the pre-test, test and control groups in terms of failure patients there is a significant difference ($\text{Sig} > 0.05$ and $F = 57.42$), so the hypothesis is not confirmed second step. In other words, using laughter therapy according to mean of failure patients in the experimental group after the test, compared to mean of patient in the control group, the experimental group had no effect on the failure. In Table 7, analysis of covariance for the third hypothesis of the research is to see the effects of Laughter Yoga on aggression.

Table 7: The Results of Analysis of Variance to Compare the Effect of Pre-Test Scores with Controlled Aggression

Sources of Change	Sum of Square	df	Mean of Square	F	Sig.	Eta
Pretest	409.51	1	409.51	223.13	0.000	0.89
The main effect (treatment)	52.25	1	52.25	28.62	0.000	0.51
Error	49.53	27	1.83			

As shown in Table 7 by controlling the pre-test, test and control group patients in terms of aggression is a significant difference ($\text{Sig} < 0.05, F = 28.62$). The third hypothesis is confirmed. In other words, using laughter therapy according to mean of aggressive patients in the experimental group after the test, compared to mean of the control group patients, reduce aggression in the experimental group figure the impact or difference in 51% of. In other words, 51 % of individual differences in grades aggression are effect of laughter therapy. In Table 8, results of analysis of covariance for the fourth hypothesis, the effect of Laughter Yoga to reduce stress research is presented.

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Table 8: The Results of Analysis of Variance to Compare Mean Scores of Pre-Test Stress, Control Effect

Sources of Change	Sum of Square	df	Mean of Square	F	Sig.	Eta
Pretest	338.23	1	338.23	67.33	0.000	0.71
The main effect (treatment)	397.75	1	397.75	79.18	0.000	0.74
Error	135.63	27	5.02			

As shown in Table 8 by controlling the pre-test, test and control group patients in terms of stress is significant difference ($\text{Sig} < 0.05$ and $F = 79.18$), so the fourth hypothesis is confirmed. In other words, using laughter therapy according to mean of stress in the experimental group after the test, compared to mean of patient in the control group, the experimental group was reduced stress.

The effect or difference is equal to 0.74. In other words, 74% of individual differences in grades laughter therapy program is associated to stress.

Discussion and Conclusion

The results show that laughter therapy techniques in reducing depression in patients with MS are significantly effective. Dalgas and colleagues (2008) in their study concluded that the essence of yoga, mind control and the central nervous system, which unlike other sports moderating effect on actions inside the body's nervous system, internal secretion of hormones and physiological factors and regulate nerve impulses and other cases. So it is effective in reducing depression and mental disorders. Also, depression can be caused by an imbalance in neurotransmitters and neuropeptides occurs during blood, laughter yoga practice helps the hormonal imbalance. Laughter also triggers the release of endorphins and euphoria will be created. In general, most studies of Laughter Yoga have been used to reduce depression Purpose: The purpose of the offering is similar to the findings of this study are consistent.

The results of Cho & Hunji (2013) and Shahidi (2008) showed that the effects of Laughter Yoga (Laughter therapy Kataria) and the effect of laughter was conducted (through movies, comedy and uplifting) on depression that showed the effects of these interventions reduce depression and bad feelings. The findings of the study findings of Javanbakht (2005) and Kimiarei (2006) in the field of yoga and breathing exercises and stretching its impact on reducing depression which showed that laughter therapy techniques to reduce failure patients with multiple sclerosis has not been effective. The causes of the failure of such preoccupation about state of life in the future, the high cost of treatment, unpredictability of MS course, it was not able to work due to illness and lack of supplies and medications eventually, after laughing Yoga was not significant.

In relation to the effectiveness of the training on reducing failure MS patients can be inferred that these factors are of high stability and a short term treatment (10 sessions) had little effect in reducing these factors. In addition, factors responsible for failure of most chronic and progressive disease that is due to disease and the diagnosis and cure of this disease and disability, easily frustrated and stressful nature of these factors will not go away. In other words, the effects of Laughter Yoga on the failure of multiple sclerosis, or laughter yoga effect on the sense of failure in these patients was not found study. Novaco's study (2010) studied the effects of laughter therapy to reduce the feeling of frustration among students in line with of this study. Students, who fail in the in research's Novaco because of the loss of experienced time after playing ridiculous comedy, feel better and less intensity compared to failure.

The results show that there is significant between the scores of aggression in experimental and control groups. This means that laughter therapy techniques are effective in reducing aggression in patients with multiple sclerosis.

Although between MS patients and healthy population of anger there is not much difference, but these patients are experiencing more unexpressed anger. Scientists believe this anger to brain damage and demyelination patients are concerned. Research of Farahani (2012) that investigated the comparative study of personality traits of NEO in patients with multiple sclerosis and healthy people which study showed that these patients have higher neuroticism scores.

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Benedict & Associates research results showed that MS patients due to chronic and incurable disease with the higher scores will factor in this. So this may be aggressive, nervous and capricious, and that such cases can be explained in MS patients both physically as psychologically. MS after being infected with the disease gradually lose their social and economic support and create a somewhat normal state of anger and aggression in these patients (Farahani, 2012). Usually lack of effective communication and there is a reasonable aggressive people without regard to others to decide jump and the decisions generally associated with irrationality and lack of reasoning (Kerichli, 2005).

Laughing is kind of unconscious defense mechanism that repressed psychic energy liberation of its importance in mind. According to Freud, ego rejects incentives and palate, anger or what is forbidden and taboo it is repressed, with or vulgar style and slang it, to laugh, joke (or other forms of humor) released again and the internal tensions that have been temporarily give relief. Research of Express (2013) is consistent with the findings of this study. The study examined the effects of 10 sessions of yoga in reducing anger prisoners, the results show positive effects of this method was a reduction of aggression. The findings of Dacher (2012) showed that effects of Laughter Yoga on anger and aggression in adults grieving universe setting study which results are consistent with the contract. In addition, the use of Laughter Yoga is effective in reducing stress in MS patients.

One way to reduce stress is to activate parasympathetic system. This process can occur through changes in breathing pattern diaphragmatic breathing exercises during Laughter Yoga can be done to facilitate it. Measuring brain waves before and after two hours of yoga showed that alpha waves (associated with relaxation) and beta waves (associated with alertness, sleep, and emotions) increased by 40 percent. The researchers argue that this means that the brain after the yoga is to calm down quickly and thus through this training can be significantly reduced levels of stress and depression. Research showed that laughing helps to stimulate blood circulation and muscle relaxation that this process of reducing physical symptoms associated with stress.

Laughter Yoga calms the sympathetic nervous system of the natural antidote to cope with stress. Findings suggest that the physiological changes resulting from laughing among people 12 to 24 hours remain stable. The researchers believe that laughter increases endorphins, serotonin, gamma interferon (IFN) and growth hormone.

Loss or stress hormone cortisol also leads laughing. Laughter Yoga in terms of effectiveness, stress, similar research has been done that is consistent with the findings of this study will be mentioned as below. Bennett (2006) Effects of Laughter Yoga reduces stress on patients and reduce activity of killer cells of patient self-report was approved. In Bangalore, India, in 2007 study of 200 showed IT professionals conducted on the effects of Laughter Yoga to reduce stress in the workplace (Shahidi, 2008).

A study of Spades (2013) on the prisoners did showed positive effect on reducing stress and anger Laughter Yoga prisoners. Also research of Bammer (2011) showed that this method reduces stress and fatigue postpartum women have positive effect. Based on findings of this research Laughter Yoga is useful and effective non-drug therapy to improve cognitive functions in MS patients.

Many custodians of laughter clubs worldwide recommend this procedure to people in different centers. Students in schools, employees in workplace, and patients in hospitals, hostile and anti-social people in prisons are among the participants in this exercise. As research showed Yoga and breathing exercises its property and laughing and physical effects with the presence in the group, all cause changes in mood and physiological state of a person. The limitations of the research subjects in this study emotional state when you answer questions that could have affected the outcome of the research it was out of control available to researchers.

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