

## The Effectiveness of Lazarus Multimodal Psychotherapy on the Perceived Chronic Pain and Disordered Eating Behaviors of Adolescent Girls with Digestive Disorders in Isfahan

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### Abstract

**Background:** The present study investigated the effectiveness of Lazarus multimodal psychotherapy on the perceived chronic pain and disordered eating behaviors of adolescent girls suffering from digestive disorders in Isfahan.

**Method:** This study employed a unique semi-experimental pretest-post-test design with a control group. The statistical population included all teenage girls suffering from digestive disorders in Isfahan in 2024. A purposeful sampling method was used, and thirty adolescent girls were selected and randomly divided into two groups. The experimental group received Lazarus multimodal psychotherapy interventions twice a week for a month and a half, while the control group received no treatment. The study utilized the West Haven-Yale Multidimensional Pain Questionnaire and eating feedback scales, and the data were analyzed using descriptive indexes and Covariance analysis by SPSS-24.

**Results:** The findings of this study demonstrated the effectiveness of Lazarus multimodal psychotherapy in reducing perceived chronic pain and disordered eating behaviors in adolescent girls with digestive disorders ( $p < 0.05$ ).

**Conclusion:** The findings of this research underscore the potential benefits of Lazarus multimodal psychotherapy in reducing the physical and behavioral problems of teenage girls with digestive disorders, offering an optimistic outlook for its future application.

**Key Words:** Disordered eating behaviors, Lazarus multimodal psychotherapy, Perceived chronic pain, Teenage girls .

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## 1- INTRODUCTION

Adolescence is an essential period of social, psychological, and physical development. Adolescents make meaningful choices about health, growth, attitudes, and health behaviors that affect adulthood (1). One problem that teenagers face is digestive disorders (2).

The digestive system is one of the active systems in the human body that performs its work in four parts: swallowing, digestion, absorption, and digestion. Diseases of the digestive system are all disorders related to the digestive system, including diseases of the esophagus, stomach, three first, second, and third parts of the duodenum, jejunum, cecum, and colon complex (including the ascending, descending, and sigmoid colons and rectum) (3). Among digestive disorders, inflammatory bowel diseases (IBD), including Crohn's disease (CD), a chronic intestinal disease that causes inflammatory patches in the digestive tract, and ulcerative colitis (UC), which only affects the inner wall of the large intestine, are the most serious. Other common, idiopathic, and chronic inflammatory disorders of the digestive tract include diverticular disease, a chronic condition of small bowel pouches, and irritable bowel syndrome (IBS), defined as "abdominal discomfort associated with altered bowel habits." The leading causes of digestive disorders include genetic predisposition to the disease, drug treatments (i.e., antibiotics), and unhealthy lifestyles, including irregular eating, physical inactivity, smoking, and low-fiber diets (4, 5).

In addition to the physical causes of gastrointestinal diseases, psychological factors are also highly influential in the occurrence of such problems (6). Gastrointestinal patients experience more psychological problems such as depression, stress, and anxiety during their illness (7); also, due to the low level of social support of these patients, their

general health is more at risk (8). Due to the existence of their disease, these people use more incompatible emotion regulation strategies when facing a stressful event (9 & 10). According to these reasons, gastrointestinal patients can be classified as having psychosomatic diseases. The term psychosomatic indicates the close relationship between the mind and the body and psychosomatic symptoms, which include a large group of diseases of the digestive system (11).

There are several issues among adolescents with digestive disorders, one of which is perceived chronic pain. Pain is classified as a separate emotional state from other senses and conceptually shows the patient's state of mental suffering (12). Pain is divided into two categories: acute pain and chronic pain. Acute pains are caused by damage to body tissues and the activation of pain receptors at the site of tissue damage, usually lasting less than six months. Chronic pain begins in response to a specific injury or illness but does not resolve for less than six months. Pains such as back pain, headaches, pain caused by joint inflammation, and cancers are chronic pains (13). Chronic pain often causes changes in roles, communication levels, and family and work activities. It ultimately leads to loss and isolation, creating a sense of insecurity in different areas of life. Researchers have found that pain intensity alone is not enough to explain the psychological and physiological symptoms of patients with chronic pain (14). As mentioned, one of the issues related to teenagers with digestive disorders is perceived chronic pain (15).

However, it seems that disordered eating behaviors are also an essential variable in adolescent girls with digestive disorders (16). Eating disorders (ED) are mental disorders defined by disordered eating behaviors and impaired psychological functioning and are among the most

common, severe, and disabling mental health syndromes (17). Although all people with eating disorders have problems with their weight and size, there are different diagnostic classes based on the type of disordered eating behavior, including anorexia nervosa, bulimia nervosa, binge-eating disorder, and eating disorders indeterminate (18). One of the issues related to eating disorders is disordered eating behaviors. Especially among young people, it has an increasing prevalence, is associated with health and emotional problems, and is characterized by irregular and intense eating behaviors that are associated with health and emotional consequences (19). These behaviors often take the form of mild or severe calorie-restricted dieting, unhealthy dieting through skipping meals, binge eating, and compensatory weight-control behaviors such as self-induced vomiting, excessive exercise, and the use of insulin inhibitors to prevent intentional calorie restriction (20).

So far, in the field of adolescents suffering from digestive disorders, various methods have been used to improve psychological variables (21). Psychotherapeutic interventions have been performed for disturbed eating behaviors and chronic pain in adolescents. Kiani and Amiryan (22) showed the effect of dialectical psychotherapy on disturbed eating behavior, while Moghadam et al. (23) investigated the effectiveness of short-term dynamic psychotherapy on chronic pain in adolescents. Zhang et al. (24) compared interpersonal psychotherapy and cognitive behavioral therapy on eating behaviors, and Flitcroft et al. (25) reviewed panic psychotherapy for perceived chronic pain. One of the less studied methods in this regard is Lazarus multimodal psychotherapy. This psychotherapy is an eclectic approach based on socio-cognitive learning theory. In this approach, the therapist has the role of guiding the

treatment and pays attention to all the seven separate dimensions of the person's personality, which include behavior, emotion, feeling, imagination, cognition, interpersonal relationships, and biological factors, according to the needs of the clients, from different points of view. Without necessarily believing in its theoretical support, in addition to weakening inappropriate behaviors and attitudes, it teaches more productive and satisfying behaviors. This treatment method is carried out with a precise plan and process and significantly emphasizes techniques and strategies instead of theories; for this reason, Lazarus called it regular technical eclecticism (26). So far, there has been no research on the effectiveness of the Lazarus multimodal treatment on these variables and the statistical population. This method, i.e., Lazarus multimodal treatment, seems effective on the psychological structures of adolescents with digestive disorders. Therefore, the current study aims to answer whether Lazarus multimodal therapy is effective in reducing perceived chronic pain and disordered eating behaviors in teenage girls with digestive disorders.

## **2- MATERIALS AND METHODS**

### **2-1. Participants**

The current research is semi-experimental and applied, conducted with a pre-test-post-test research design with a control group. The sample members were selected using purposive sampling method. Among adolescent girls referred to Isfahan health clinics for digestive problems in 2024, considering the minimum sample size of 15 people for each group in semi-experimental designs, 30 girls were chosen according to the inclusion and exclusion criteria and randomly assigned to two groups-control and experimental, with 15 girls in each group. Also, the participations have the desire to participate in the

research project based on the entry and exit criteria.

The criteria for entering the research include teenage girls with digestive disorders, not using concurrent psychological treatments, not taking psychiatric drugs in the past three months (through asking clients), being able to participate in all sessions, and not suffering from physical diseases (as determined by a doctor's diagnosis). The criteria for withdrawing from the research include non-cooperation, failure to complete meeting assignments, and the absence of more than two meetings.

## 2-2. Instruments

**a) Perceived chronic pain (West Haven-Yale Multidimensional Pain Inventory).** This questionnaire was created by Kenz, Turk, and Rudi in 1985 at West Haven-Yale University (27) and was translated and validated in Iran by Mir Zamani et al. (28). The questionnaire consist of 48 items and 12 scales, including the following scales; intervention with questions 2, 3, 4, 8, 9, 13, 14, 17, 19, support with questions 5, 10, 15; pain intensity with questions 1, 12, 7; life control with questions 11, 16; emotional distress with others with questions 5, 8, 11, 13, 14, 2, anguish and confusion with questions 3, 7, 11, 15 In the third part, household chores are evaluated with questions 1, 5, 9, 13, 17; work outside the home with questions 2, 6, 10, 14, 18; activities away from home with questions 3, 7, 11, 15; social activity with questions 4, 8, 12, 16. Overall activity is obtained by summing the total of the third part divided by 18. This tool measures the range of reactions of the spouse and other important people in the patient's life, such as their perception of their disability. In the current research, the Cronbach's alpha of this questionnaire was calculated to be 0.88.

**b) Eating feedback scales.** This 26-item questionnaire is a screening

questionnaire that was made to help determine in the future whether the eating behavior and attitudes of the respondents need further evaluation. This questionnaire does not provide a diagnosis but instead identifies symptoms consistent with each eating disorder (29). Participants are asked to rate the intensity of their attitudes and behaviors related to food and weight. This test measures concerns and disordered eating habits (30). There are three subscales in this tool that assess different areas of disordered eating behaviors or eating disorder tendencies. The first subscale assesses dieting, mental arousal, the desire to lose weight and the amount of calories in food.

The second subscale of binge eating and mental inflammation with food reflects the participant's feelings about food. The third subscale reflects the control skills perceived by the participant about food. The third subscale of oral restraint evaluates the control the participant perceives about eating and the pressures he receives from others to gain weight. Two sample questions on this scale are "I am always preoccupied with food" and "When I eat, I feel unable to stop myself." It is based on a 6-point Likert scale from 1 (always) to 6 (never). The validity and reliability of the scale have been reported favorably (31). In the current research, the reliability was obtained by calculating Cronbach's alpha of 0.86.

The therapeutic intervention included Lazarus psychotherapy (26), which was performed on the experimental group for ten sessions of 90 minutes. To comply with ethical considerations, the research objectives were explained to the research participants, and they were assured that any information related to them would remain completely confidential. In addition, while answering all the questions of the participants about the research, they were assured that the results of the research would be published in the form of

statistics and general conclusions and not individual ones, and they had full authority not to participate in the study or at any stage they wanted. They are free to withdraw from the research.

**2-3. Data Analysis**

The data collected was analyzed significantly at both the descriptive level using mean and standard deviation indices and at the inferential level through analysis of variance with repeated measures. This analysis was performed in the statistical

software SPSS-24, with the significance level set at  $p < 0.05$ .

**3- RESULTS**

Demographic examination of the characteristics of the participants in the research showed that the average age of the participants was 12.2 with a standard deviation of 4.23. The mean and standard deviation of the scores of perceived pain and disturbed eating behaviors are presented in Table 2.

**Table- 1:** Summary of Lazarus multimodal psychotherapy sessions.

Summary of Sessions
<p>Session 1: 1- Getting to know the nature of counseling and the unique features of Lazarus multi-dimensional therapy; 2. Discussing mental well-being; 3. Explaining the interaction of the seven dimensions on the onset and continuation of medical disorders; (4) Acquainting clients with their tasks and duties; completing the life history questionnaire; and (5) The title of the assignment</p> <p>Session 2: homework review, collaborative discussion about how the seven dimensions interact according to the completed questionnaire, preparation of Lazarus' Forty Toxic Thoughts book (Lazarus and Fay, 2003) as homework.</p> <p>Session 3: reviewing the assignments, discussing the dimensional and structural profile of the group prepared by the therapist, agreeing and choosing the healthiest dimension to increase the motivation to start the intervention, and the task of drawing the structural profile by the clients.</p> <p>Session 4: review of assignments, practical techniques in the field of visualization (whiteboard and the highest level of visualization), homework assignments</p> <p>Session 5: reviewing assignments, practicing self-expression skills (ambiguity, record-breaking, negative statements, role-playing) as an interpersonal dimension, setting homework</p> <p>Session 6: review of assignments, behavioral techniques (recording and self-monitoring), positive reinforcement, punishment through compensation, homework</p> <p>Session 7: reviewing assignments, sensory perception techniques (21 group muscle relaxation), assigning homework</p> <p>Session 8: homework review, cognitive techniques (cognitive distortion coping technique, constructive self-talk), homework</p> <p>Session 9: Reviewing assignments, life techniques or lifestyle (regular exercise, principles of nutrition and sleep, reducing smoking and alcohol), assigning homework, and preparing the book "I Can Do It If I Want".</p> <p>Session 10: a review of assignments, a summary of previous sessions, answering questions about follow-up in the post-treatment period, receiving the participants' reflections on the overall treatment process, thank you, and completing the post-test.</p>

**Table-2:** Descriptive statistics indicators of the investigated variables in the experimental and control groups.

Variables	Group	Stage	Mean	standard deviation
Perceived chronic pain	Experimental	Pre-test	82.93	6.26
		Post-test	62.87	11.42
	Control	Pre-test	55.33	11.73
		Post-test	67.40	9.26
Disordered eating behaviors	Experimental	Pre-test	78.33	5.80
		Post-test	63.87	8.21
	Group	Pre-test	71.87	8.71
		Post-test	68.60	9.88

The results of the Shapiro-Wilk test on the main variables of the study showed that the distribution of these variables was normal ( $p>0.05$ ), and the results of the Lüne test also showed that the variance in the study groups in the variables of perceived chronic pain scores and disordered eating behaviors was equal ( $p>0.05$ ). The results of the multivariate covariance analysis, regarding the effect of Lazarus multimodal psychotherapy on perceived chronic pain and disordered eating behaviors, showed that the significance levels of all multivariate covariance analysis tests are allowed. In this study, the pre-test covariate was perceived chronic pain and disordered eating behaviors scores. The pre-test scores of these variables were controlled using multivariate analysis. These results showed that there was a significant difference in at least one of the dependent variables (Wilks lambda=0.234,  $F=18.56$ ,  $\eta^2=0.68$   $P<0.01$ ) in the studied groups. In other words, it can be said that the

difference in the scores of the two groups shows that Lazarus multimodal psychotherapy has an effect on perceived chronic pain and disordered eating behaviors, considering the eta square. It can be said that 68% of these changes are due to the effect of the intervention. Then univariate analysis of covariance was performed. The results are presented in Table 3.

The data in Table 3 shows that when considering the pre-test scores as auxiliary variables, the difference between the post-test scores of the two experimental and control groups was significant in perceived chronic pain and disordered eating behaviors ( $P<0.01$ ). Therefore, it can be concluded that Lazarus multimodal psychotherapy has an effect on reducing perceived chronic pain and disordered eating behaviors base on the effect size, it can be determined that this effect was 43% for perceived chronic pain and 33% for disordered eating behavior.

**Table- 3:** The results of variance analysis on the variables of perceived chronic pain and disordered eating behaviors.

Variable	DF	Mean square	F	Sig	Eta	Statistical power
Perceived chronic pain	1	11719/2	21/22	0.001	0.43	0.99
Disordered eating behaviors	1	1638/4	13/501	0.001	0.33	0.93

#### 4- DISCUSSION

The research results showed a significant difference between the experimental group and the control group in evaluating pain experience in the interaction of time and group. Lazarus's multimodal psychotherapy reduced 43% of the variance of perceived chronic pain and 33% of the variance of disordered eating behaviors.

In explaining the research results, Lazarus' multimodal psychotherapy is a comprehensive and diverse approach to psychological treatment based on various aspects of people's lives, including behavior, emotions, feelings, imagination, cognition, and interpersonal relationships (32). It has been established that humans react to psychological problems and challenges in multiple ways. This approach dramatically helps clients' mental health by using diverse techniques tailored to individual needs (33). One of the techniques is tracking. Tracking is a strategy that may be employed when clients are confused by the rumination of emotional reactions. The first step in tracking involves asking the person to recount the unpleasant event or incident. In the multimodal Lazarus form, the individual is then asked to identify what behaviors, emotional responses, images, feelings, and cognitions come to mind. At first, clients notice that, for example, their heart beats faster than usual (feeling). It recalled a memory in which she caused him to ejaculate after eating at a party (pictured). This memory continued to cause a heightened sense of shame (affect). In this case, the reference showed a pattern of feeling, image, affect, cognition, feeling, cognition, and affect. After that, the client is asked to focus on sensory training techniques (such as diaphragmatic breathing and deep muscle relaxation), followed immediately by imagery exercises (e.g., using confronting imagery

and choosing mental images that evoke deep feelings of relaxation) (34).

Also, in Lazarus's multimodal psychotherapy, he emphasizes changing unhealthy behavior patterns. Unhealthy and destructive behaviors can have adverse effects on people's mental and physical health. Multimodal psychotherapy helps patients substitute healthier behaviors. For example, changing behaviors related to disordered eating behaviors or experiential avoidance can lead to improvements in a patient's physical and psychological condition. Unhealthy thought patterns can lead to the aggravation of psychological problems. Lazarus's multimodal psychotherapy helps patients identify and change incorrect and negative thought patterns. By Changing these thought patterns can reduce rumination, experiential avoidance, disordered eating behaviors, improved self-awareness, and increased life satisfaction (35).

In explaining this hypothesis, Lazarus' multimodal psychotherapy, which combines different approaches in psychological treatment, has positive effects on reducing pain intensity, punitive reactions, and improving household activities, work outside the home, and social activities away from home (36). One of the most important results of Lazarus's multimodal psychotherapy the reduction of chronic pain intensity. Cognitive-behavioral theory teaches us how thoughts and beliefs can affect the experience of pain (37). This approach helps patients create healthier thought patterns by identifying and changing harmful and destructive thoughts related to pain. Additionally, relaxation techniques and guided imagery help reduce tension and stress ultimately, reducing pain intensity. Lazarus' multimodal psychotherapy aids in patients identifying and changing unhealthy behavior patterns by utilizing behaviorism and cognitive-behavioral theory. These theories posit that unhealthy behaviors stem from negative and

incorrect thoughts that need to be identified and corrected. For example, individuals suffering from chronic pain may avoid physical activities due to negative experiences. Multimodal psychotherapy, through gradual exposure techniques and teaching coping skills, helps patients overcome these avoidance behaviors and replace them with healthier ones (38).

Considering the effect of multimodal Lazarus therapy on disordered eating behaviors, Lazarus multimodal psychotherapy is based on seven different individual dimensions: observable behaviors and actions, feelings and emotions, sensory experiences like pain and pleasure, mental images and fantasies, thoughts and beliefs, social interactions and relationships, physiological factors and the use of drugs. This comprehensive model allows therapists to design diverse and flexible treatment programs based on patients' individual needs. One of the common problems among people is that they look at food as a means of dealing with stress and emotional problems (39). Multimodal psychotherapy, focusing on different individual dimensions, helped patients to identify and manage the underlying causes of binge eating. For example, the rate of overeating decreased by correcting thoughts and beliefs related to food and creating healthier behaviors. Preoccupation with food is usually associated with anxiety and obsessions. By using cognitive and behavioral techniques, patients could change their thought patterns and avoid focusing too much on food. They reduce food-related anxieties and engage in more positive and productive activities (40).

#### **4-1. Limitation of The Study**

The research results are limited to adolescent girls suffering from digestive

disorders in Isfahan City, and gender differences may be effective in generalizing the results. This research is suggested to be investigated on teenage boys with digestive disorders. Because the results can be generalized, it should be done in another city to determine the effects of cultural differences. Blinding patients to the hypothesis and investigators in psychological interventions can be challenging, but very effort should be made to ensure that patients are unaware of the intervention whenever possible. This is another limitation of the study. Future research should aim to blind both participants and therapists.

#### **5- CONCLUSION**

Digestive problems are one of the most common issues among teenagers. They suffer from disordered eating behaviors and chronic pain. The results of recent study indicate that Lazarus's multimodal psychotherapy is effective in reducing chronic pain and disordered eating behaviors in girls with digestive diseases. Lazarus Multifaceted Psychotherapy uses a variety of methods, including self-protection, personality integration, and connecting with unconscious emotions, to accelerate psychological recovery and help people cope with psychological problems. By creating changes in behavior and emotions, this psychotherapy can help reduce disordered eating behaviors and the perception of chronic pain. People involved in Lazarus Multifaceted Psychotherapy have experienced significant improvements in their perceptions and behaviors through practice and participation in the therapeutic process. This psychotherapy can help people gain greater self-awareness and self-knowledge, better view themselves and life's challenges, and respond to them more appropriately.



## **6- JOURNALISM ETHICS CONSIDERATIONS**

Ethical issues, such as plagiarism, informed consent, misconduct, data fabrication or forgery, double publication or submission and redundancy, have been carefully reviewed by the authors. Additionally, this research has been approved by the ethics committee of Shahrekord Azad University under the number IR.IAU.SHK.REC.1402.159.

## **7- ACKNOWLEDGEMENTS**

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## **8-CONFLICT OF INTEREST**

The authors have no conflicts of interest to declare.

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