



The Effectiveness of Compassion Focused Training on Life Expectancy, Health Promoting Lifestyle and Health Hardiness in Patients with Type 2 Diabetes

Fatemeh. Kahaki¹, Nourmohammad. Bakhshani*² & Mohammadali. Fardin³

1. PhD Student, Psychology, Department of Psychology, Zahedan Branch, Islamic Azad University, Zahedan, Iran
2. *Corresponding Author: Professor, Department of Clinical Psychology, Children and Adolescent Health Research Center, Zahedan University of Medical Sciences, Zahedan, Iran
3. Assistant Professor, Department of Psychology, Zahedan Branch, Islamic Azad University, Zahedan, Iran

ARTICLE INFORMATION	ABSTRACT
Article type Original research Pages: 45-56 Corresponding Author's Info Email: nmbs14@yahoo.com	Background and Aim: The aim of this research was determine the effectiveness of compassion focused training on life expectancy, health promoting lifestyle and health hardiness in patients with type 2 diabetes. Methods: This study was semi-experimental with pretest and posttest design with a control group. The research population was type 2 diabetes patients had files in Diabetes Association of Zahedan city in the spring of 2021 year. After reviewing the inclusion criteria, number of 30 people were selected by purposive sampling method and randomly replaced into two equal groups. The experimental group was trained 8 sessions of 70 minutes with the compassion focused training method and the control group was placed on a waiting list for training. The research instruments were the life expectancy questionnaire (Snyder et al., 1991), health promoting lifestyles profile II (Walker et al., 1995) and revised health hardiness inventory (Gebhardt et al., 2001). Data were analyzed by tests of chi-square and multivariate analysis of covariance in SPSS-19 software. Results: The findings showed that the experimental and control groups did not significantly different in terms of gender, age, education and marital status ($P>0.05$). Also, the compassion focused training method led to increase the life expectancy ($F=403.86$, $P<0.001$), health promoting lifestyle ($F=93.90$, $P<0.001$) and health hardiness ($F=89.20$, $P<0.001$) in patients with type 2 diabetes ($P<0.001$). Conclusion: The results indicated the effectiveness of compassion focused training on life expectancy, health promoting lifestyle and health hardiness in patients with type 2 diabetes. Therefore, for improving the psychological traits can be used from compassion focused training along with other training methods.
Article history: Received: 2022/09/19 Revised: 2022/02/02 Accepted: 2022/02/12 Published online: 2023/06/26	
Keywords: <i>Compassion focused training, Life expectancy, Health promoting lifestyle, Health hardiness, Type 2 diabetes.</i>	



This work is published under CC BY-NC 4.0 licence.

© 2023 The Authors.

How to Cite This Article:

Kahaki, F., Bakhshani, N., & Fardin, M. (2023). The Effectiveness of Compassion Focused Training on Life Expectancy, Health Promoting Lifestyle and Health Hardiness in Patients with Type 2 Diabetes. *jayps*, 4(4): 45-56.

Introduction

Chronic diseases refer to diseases most of which cannot be prevented by vaccination and for which there is no known and definitive treatment (Mishra, Waller, Cheung, & Mishra, 2022). According to the statistics of the International Diabetes Federation in 2019, there were about 463 million people with diabetes in the world. It is estimated that their number will reach more than 700 million people by 2045, and the prevalence of diabetes in Iran is 10.3%, so that most people do not know about their disease (Hemati et al., 2020). Diabetes is a chronic and progressive disease characterized by the inability of the body to metabolize glucose, and if it is not controlled, it can lead to eye diseases, nerve damage, heart disease, and costly health care (Kipila et al., 2019). Type 2 diabetes is a type of metabolic disorder that is diagnosed by high blood glucose in conditions of insulin resistance and relative insulin deficiency (Pavaskar and Hemkaran, 2018).

One of the problems of people with type 2 diabetes is the reduction of life expectancy (Tonis et al., 2021; Amini et al., 2020). This structure is a dynamic motivational force that gives people the ability to pursue daily activities and sufficient motivation to do them (Levantisi and Hemkaran, 2022). Life expectancy is the process by which people determine their goals, adopt strategies to achieve them, create the necessary motivation to implement their goals and maintain them throughout their life (Frederick, Hammersmith, and Gilderblum, 2019). Life expectancy is an essential psychological resource for patients with diabetes, and efforts should be made to increase it, because its lack increases anxiety and depression and decreases the quality of life (Parker et al., 2020). The mentioned structure acts as a coping resource in adapting to problems and solving challenges. It causes people to determine their goals, identify or create solutions to achieve their goals while having a sense of success. In addition, it makes them feel obliged to implement solutions to achieve goals and have enough motivation for it (Jiang et al., 2018). People with life expectancy build relationships with others and have a more positive and optimistic view of the future. Even when they are in unfavorable conditions, they can focus on the positive aspects of the situation and interact

positively and constructively with others (Lee et al., 2020).

Another problem for people with type 2 diabetes is the loss of a health-promoting lifestyle (Kalangadan et al., 2020). Lifestyle is a routine and daily life activity that affects people's health and includes a set of perceptions, values, tastes, and behavior patterns that determine people's lifestyle. (Liu et al., 2019). In fact, lifestyle is healthy and unhealthy habits, most of which are formed during childhood and adolescence and are usually maintained in other ages (Kelly et al., 2020). A health-enhancing lifestyle means realizing human potential and maintaining balance and purposeful orientation in the environment, which includes: The six dimensions of spiritual growth are feeling responsible for one's health and society, maintaining interpersonal relationships in order to improve the social dimension of health, managing stress in order to prevent physical and mental diseases, performing physical activity and following a healthy diet to maintain health in daily life. (Xiu et al., 2021).

Another problem of type 2 diabetes sufferers is the reduction of health tenacity (Azazi Bejnvardi, Kadampour, Moradi Shakib and Ghadbanzadeh, 2019). Toughness is a personality trait that acts as a coping resource in the face of stressful and challenging situations or events and has three parts: commitment, control, and combativeness (Barton & Homish, 2020). Pollock (1993) expressed the concept of health hardiness based on Kubasa's (1979) hardiness concept, which is more related to health and disease than hardiness (Gibhardt et al., 2001). People with health tenacity, while evaluating events positively, use adaptive coping strategies to deal with diseases, examine aspects of the problem well and use the maximum available resources, and have a great tendency to re-evaluate health stressors as a beneficial factor for growth and learning. (Jeong-in et al., 2007). Health resilience enables people, especially chronic patients, to cope or adapt more appropriately to the problems caused by illness through commitment, control, and resilience (Xiu et al., 2019).

There are many ways to improve psychological characteristics, including compassion-based education (Grodin et al., 2019). Compassion-based education seeks to learn key solutions and strategies such as reasoning for compassion, kind behaviors, and compassionate feelings, which

increase distress tolerance and improve psychological well-being and empathy (Trinidad et al., 2020). Compassion-based teaching emphasizes that external soothing thoughts, agents, images, and behaviors must be internalized to calm the mind and thoughts (Holly et al., 2022). The core of this educational method is meditation based on compassion, which is realized through the balance between three systems including the threat and self-protection system, the emotions system, and the social support system (Lathern et al., 2020). This structure has three parts: kindness and correct understanding towards oneself and others without having a self-critical and judgmental point of view, believing that negative experiences and events happen in the lives of all human beings, and having a balanced and appropriate understanding of one's experiences and feelings without exaggerating them. (Tao et al., 2021). Thus, compassion-based education includes components of self-kindness versus self-judgment, human commonality versus isolation, and mindfulness versus extreme identification (Lathern et al., 2021). Compassion-based education makes people better able to resolve conflicts between individuals by considering their own and others' needs and desires, and instead of avoiding painful and uncomfortable feelings and emotions, they approach them with humanitarian perceptions and feelings of human commonality. (Carles et al., 2021).

Although no research was found on the effectiveness of compassion-based education on health-enhancing lifestyle and health tenacity, the results of the most important researches on the effectiveness of compassion-based education on life expectancy, health-enhancing lifestyle and health tenacity are reported below. For example, the results of Umphrey, Sherblom and Sovitkoski (2021) showed that self-compassion and hope had a positive and meaningful relationship. Seyedjaafari et al. (2020) concluded in a research that compassion-focused treatment increased resilience and life expectancy in type 2 diabetes patients. In another study, Rajaei and Sederposhan (2020) reported that mindfulness-based compassion therapy increased psychological well-being and life expectancy in women with multiple sclerosis. Seyedjaafari et al. (2019) concluded in a research that the treatment focused on compassion increased the life expectancy of the elderly. In another study,

Yang et al. (2016) reported that self-compassion had a significant positive effect on hope and life satisfaction in adults. The results of Gedik's research (2018) showed that self-compassion and health-enhancing lifestyle behaviors had a positive and significant relationship. Esadi Bejaieh et al. (2021) in a research concluded that teaching self-compassion increased the life satisfaction and resilience of elderly women. In another study, Kazemi et al. (2020) reported that compassion-based therapy reduced feelings of loneliness and blood sugar and increased self-care behaviors in patients with type 2 diabetes. Mantillo and Caracasido (2017) concluded that a short self-compassion intervention increased self-compassion, positive affect, and life satisfaction and decreased negative affect in students. In addition, the results of Ghatoo et al.'s (2018) research showed that compassion-focused therapy increased resilience in women with multiple sclerosis.

Type 2 diabetes is a serious chronic metabolic disorder that has a significant impact on the health, quality and life expectancy of patients as well as the health care system of communities. This metabolic disorder occurs as a result of inefficiency of insulin secretion, insulin action or both. People with diabetes face two major problems, one of which is self-care issues such as dieting and continuing the diet, and the other is emotional and psychological health-related issues (Ghaffarzadeh Almasi et al., 2021). People with type 2 diabetes have many problems, especially in terms of reduced life expectancy, health-enhancing lifestyle, and health stubbornness. As a result, it is necessary to look for ways to improve them, among the possibly effective methods, we can mention the method of teaching based on compassion. Investigations indicated that no research was found on the effectiveness of compassion-based education on health-enhancing lifestyle and health tenacity, and few studies have been conducted on its effectiveness on the variables of life expectancy, health-enhancing lifestyle and health tenacity. Therefore, it is necessary to investigate the effectiveness of the compassion-based training method on the mentioned variables, and the results of this study can help health professionals and therapists in designing and implementing programs to improve health-related characteristics in type 2 diabetic patients. According to the mentioned materials, the aim of this research was to determine the effectiveness

of compassion-based education on life expectancy, health-promoting lifestyle and health persistence in type 2 diabetic patients.

Method

This was a semi-experimental study with a pre-test and post-test design with a control group. The research community of type 2 diabetes patients had files in Zahedan diabetes society in the spring of 1400. To ensure the sample size and possible dropouts, the sample size for each group was considered to be 15 people who were selected by purposive sampling method after checking the inclusion criteria. Due to the existence of two experimental and control groups, the number of samples in this research was 30 people. The inclusion criteria for the study include: Suffering from type 2 diabetes based on the file in Zahedan Diabetes Association; minimum education diploma; Age 21 to 40 years; No record of receiving a motivational interview; No addiction and use of psychiatric drugs such as anti-anxiety and anti-depressants; Failure to use other educational or therapeutic methods at the same time; No record of receiving psychological services in the last three months. The exclusion criteria included refusal to continue cooperation, absence of more than two sessions, lateness of more than three sessions, and non-cooperation or low cooperation of the participants.

Materials

1. Life expectancy questionnaire: The life expectancy questionnaire was designed by Snyder, Harris, Anderson, Halliran, Irving, Sigmon et al. (1991) with 12 items. The number of 4 items including items 3, 5, 6 and 11 are deviant items and are not included in the scoring. Other items are graded using a five-point Likert scale with the options of completely disagree (score 1), disagree (score 2), have no opinion (score 3), agree (score 4) and completely agree (score 5). Items 3, 5, 7 and 11 are scored in reverse. The score of the tool is calculated with the total score of the items, so the minimum score is 8 and the maximum score is 40, and a higher score indicates a higher life expectancy. Snyder et al. (1991) reported the instrument's divergent validity with the Beck Depression Inventory - 0.44 and its reliability with Cronbach's alpha 0.70 and one-week retest 0.74. In Iran, Heydari Al-Kathir and Dasht-Borghi (1400) reported the reliability of the tool with Cronbach's

alpha method of 0.88. In the present study, the reliability value was calculated using Cronbach's alpha method of 0.91.

2. The second version of the health-promoting lifestyle profile: The second version of the health-promoting lifestyle profile was designed by Walker, Sechrist and Pender (1995) with 52 items. The items are scored using a four-point Likert scale with the options of never (score 1), sometimes (score 2), most of the time (score 3) and always (score 4). The score of the tool is calculated with the total score of the items, so the minimum score is 52 and the maximum score is 208, and a higher score indicates a better and more desirable health-promoting lifestyle. Walker et al. (1995) confirmed the content validity of the tool with experts' opinion and the construct validity of the tool with factor analysis method and reported its reliability with Cronbach's alpha method of 0.94. In Iran, Najransab and Dashtbozorgi (2019) reported the reliability of the tool with Cronbach's alpha method of 0.91. In the present study, the reliability value was calculated using Cronbach's alpha method of 0.90.

3. Revised list of health stubbornness: The revised list of health stubbornness was designed by Gibhart et al. (2001) with 24 items. The items are scored using a five-point Likert scale with the options of completely disagree (score 1), disagree (score 2), have no opinion (score 3), agree (score 4) and completely agree (score 5). The number of 11 items, including items 12 to 22, are scored in reverse. The score of the tool is calculated with the total score of the items, so the minimum score is 24 and the maximum score is 120, and a higher score indicates greater health stubbornness. Gibhart et al. (2001) confirmed the validity of the tool with internal and external sources of health control and reported its reliability with Cronbach's alpha method of 0.78 in the student population and 0.79 in the general population. In Iran, Dashtzorogi and Shamshirgaran (2018) reported the reliability of the tool with Cronbach's alpha method of 0.81. In the present study, the reliability value was calculated using Cronbach's alpha method of 0.86.

4. Compassion-based education: In the present study, Kazemi et al.'s (2020) package, which was built on the basis of Gilbert's (2010) theory, was used for the intervention of compassion-based education. Its goals and contents were presented in Table 1, by separating the sessions.

Table 1. Objectives and contents of compassion-based education by sessions

Session	Goals	Content
1	Communicate and introduce compassion-based education	Communicating and familiarizing people with each other, defining stress and vulnerability caused by diabetes and its effects on people, and introducing compassion-based education
2	Empathy training	Teaching the importance of having an empathetic attitude to life matters and practicing empathy skills

3	Empathy training	Creating more and more diverse feelings about other people's issues and problems to help them
4	Teaching forgiveness	Accepting mistakes and forgiving yourself for having mistakes to accelerate change
5	Learning to accept issues	Accepting upcoming changes and tolerating difficult and challenging conditions due to the variability of life and facing people with different challenges in life.
6	Teaching the development of valuable and sublime feelings	Creating valuable and sublime feelings and promoting them to have a suitable, effective and efficient approach in life
7	Responsibility training	Teaching responsibility to create new and efficient feelings and perspectives in oneself
8	Practicing skills, summarizing and thanking	Practicing the skills of the previous sessions to deal with different and changing life conditions in different ways, summarizing the sessions and thanking the active participation of type 2 diabetic patients in the intervention sessions.

Implementation

The stages of the research were such that after coordinating with the officials of Zahedan Diabetes Association and stating the purpose, importance and necessity of the research, permission was obtained from the officials to conduct the research and cooperate with the researcher. After that, they were asked to introduce type 2 diabetes patients to the researcher and sampling continued until the desired sample size was reached. For the samples, the importance and necessity of the research was explained and they were assured about the observance of ethical points, and the consent form to participate in the research was signed by them. Then, the samples were randomly divided into two equal groups including experimental and control groups (15 people in each group) and the experimental group received 8 sessions of 70 minutes with compassion-based training and the control group remained on the waiting list for training. The intervention in the experimental group was carried out by a health psychologist with a certificate of compassion-based training in one of the

psychological service clinics of Zahedan city. Both groups were evaluated a few days before the intervention in the experimental group and a few days after the intervention in the experimental group in terms of life expectancy, health-promoting lifestyle and health tenacity with standardized tools. Finally, the data were analyzed with chi-square tests and multivariate covariance analysis in SPSS-19 software at a significance level of 0.05.

Results

The participation rate in the present study was 100% and the analyzes were performed for two groups of 15 people. There was no significant difference between the experimental and control groups in terms of gender, age, education and marital status ($P < 0.05$).

According to the results of Table 2, the average life expectancy, health-promoting lifestyle and health tenacity of the experimental group compared to the control group increased more in the post-test stage than in the pre-test stage.

Table 2. Mean and standard deviation of the research variables in the evaluation stages

Variable	Stage	Experimental ¹ SD±Mean	Control SD±Mean
Hope	Pre-test	20/27 ± 4/25	19/87 ± 4/05
	Post-test	25/13 ± 4/07	19/66 ± 3/72
Lifestyle	Pre-test	105/87 ± 9/33	103/73 ± 9/38
	Post-test	121/20 ± 7/10	103/53 ± 8/97
Hardiness	Pre-test	38/80 ± 4/54	37/93 ± 4/96
	Post-test	45/67 ± 4/32	37/60 ± 4/79

Examining the assumptions of multivariate covariance analysis showed that, based on the Kolmogorov-Smirnov test, the assumption of normality of life expectancy, health-enhancing lifestyle and health tenacity variables of the experimental and control groups was not rejected in the pre-test and post-test phases ($P < 0.05$). Based on Box's M test, the assumption of equality of covariance matrices was confirmed (Box's $M = 0.913$, $P = 0.51$, Box's $M = 8.93$). Based on the Levene test, the assumption of equality of variances of the variables of hope ($F = 0.759$, $P = 0.27$), lifestyle ($F = 0.241$, $P = 1.53$) and stubbornness ($F = 0.576$, $P = 0.56$) was confirmed.

Based on the interaction of the interaction effect of the group and the pre-test, the assumption of homogeneity of the regression slope of life expectancy variables was confirmed ($F = 0.421$, $P = 0.47$). In addition, the health promotion lifestyle vote ($F = 0.670$, $P = 0.83$) and health stubbornness ($F = 0.344$, $P = 0.66$). Therefore, the use of multivariate covariance analysis was allowed. According to the results of Table 3, the teaching method based on compassion at least caused a significant change in one of the variables of life expectancy, health promoting lifestyle and health tenacity ($P < 0.001$).

Table 3. Results of multivariate tests to determine the effectiveness of compassion-based education on research variables

Test	Value	F	Sig.	Effect size	Power
Pillai's trace	1/06	14/14	0</001	0/53	1/00
Wilk's Lambda	0/02	54/85	0</001	0/82	1/00
Hotteling's Trace	26/04	156/26	0</001	0/93	1/00
Roy's Largest Root	25/94	328/59	0</001	0/96	1/00

According to the results of Table 4, compassion-based education caused a significant increase in all three variables in the following order: Life expectancy ($F = 403.86$, $P < 0.001$), health promoting lifestyle ($F = 93.90$, $P < 0.001$) and health tenacity ($F = 89.20$, $P < 0.001$) were found.

According to the effect size, 95% of the difference in life expectancy, 83% of the difference in health-promoting lifestyle, and 82% of the difference in health toughness were due to the compassion-based education method.

Table 4. Results of multivariate covariance analysis to determine the effectiveness of compassion-based education on each of the research variables

Variable	Source	SS	df	MS	F	Sig.	Effect size	Power
Hope	Pre-test	484/72	1	484/72	1399/47	0</001	0/97	1/00
	Group	139/88	1	139/88	403/86	0</001	0/95	1/00
	Error	8/75	25	0/35				
Health promoting lifestyle	Pre-test	2379/26	1	2379/26	195/98	0</001	0/93	1/00
	Group	1139/98	1	1139/98	93/90	0</001	0/83	1/00
	Error	303/50	25	12/14				
Hardiness	Pre-test	586/87	1	586/87	218/74	0</001	0/85	1/00
	Group	239/31	1	239/31	89/20	0</001	0/82	1/00
	Error	67/00	25	2/68				

Conclusion

The present study was conducted with the aim of treatment based on acceptance and commitment on emotional processing, irrational beliefs and rumination in patients with generalized anxiety disorder. The results of the present study showed that the treatment based on acceptance and commitment led to the improvement of the emotional processing of the subjects in the experimental group. This finding is consistent with the findings of Keshavarz Afshar et al. (2018), Tarkhan (2017) and Ruiz et al. (2020).

In explaining this finding, it can be said that people who have low emotional processing ability, when they are placed in therapy sessions based on acceptance and commitment, they are taught that any action to avoid or control unpleasant and unwanted mental experiences is ineffective. That is, it has the opposite effect and causes their stress to intensify. Therefore, people with generalized anxiety disorder are helped to experience disturbing thoughts simply as a thought and become aware of the nature of their inefficiency and instead of responding to them, do something that is important in their lives and in line with their values. This type of change in the attitude and relationship of people suffering from anxiety disorders with their inner experiences and avoidances, after some time, makes them turn their minds to their activities, goals and plans and get positive and better emotional results (Keshavarz et al., 2018). One of the important parts in the treatment based on acceptance and commitment is understanding the adaptive nature of emotions and increasing emotional awareness using various interventions including mindfulness. Mindfulness skill is one of the techniques that predict self-regulated behavior and positive emotional states. On the one hand, this skill causes cognitive evaluation of emotions, reduction of negative emotions, increase of positive emotions and adaptive behaviors. On the other hand, it leads to the awareness of emotions, their acceptance and the expression of emotions, especially positive emotions in different life situations, and as a result, it will lead to an increase in emotional processing skills (Ruiz et al., 2020).

In addition, the findings of the present study showed that the treatment based on acceptance and commitment led to the reduction of irrational beliefs of the subjects in the experimental group. This finding is in line with the research findings

of Nikokar et al. (2021), Kohneshin Taremi et al. (2021), Azadi et al. In explaining this finding, it can be said that treatment based on acceptance and commitment instead of ignoring emotions and inner experiences by guiding patients with generalized anxiety disorder towards awareness of feelings, emotional experiences, acceptance. Using them properly makes a person establish a proper relationship with his situations and interactions and look at them with a new perspective. This approach emphasizes discovering values and how to create a meaningful life for oneself and family members through the creation of personal values. They consider all their life experiences to find ways to live more efficiently. It encourages people to accept thought processes as a necessary and real function for psychological adaptation, and as a result, negative cognitive schemas are reduced in people and enable people to manage difficult and critical situations more effectively. (Nikopour et al., 2021). Treatment based on acceptance and commitment through training to replace oneself as the context, observing thoughts and feelings and not judging them, separating oneself from thoughts and feelings, prioritizing values, accepting issues and challenges, and adherence and commitment to treatment reduces irrational beliefs. (Ziaei et al., 2021). Treatment based on acceptance and commitment by encouraging people to practice frequently, focusing attention on neutral stimuli and purposeful awareness on the body and mind, frees people with irrational beliefs from mental preoccupation with irrational thoughts; That is, these techniques reduce anxiety and physiological tension in a person by increasing the person's awareness of the experiences of the present moment and returning attention to the cognitive system and more efficient processing of information. As a result, the above factors cause the treatment based on acceptance and commitment to cause irrational beliefs of patients with generalized anxiety disorder (Alipanah et al., 2020).

Also, the findings of the present study showed that the treatment based on acceptance and commitment led to the reduction of rumination in the subjects of the experimental group. This finding is in line with the research findings of Hashim Varzi et al. (2021), Hamidi et al. (2020), Demhari et al. (2018) and Garivani et al. In explaining this finding, it can be said that behavioral commitment exercises along with fault and acceptance techniques, as well as

detailed discussions about the values and goals of the individual and the need to specify values, have all led to a reduction in rumination in patients with generalized anxiety disorder. In therapy based on acceptance and commitment, psychological flexibility is: Increasing the client's ability to relate to their experience in the present time and based on what is possible for them at that moment, choose to act in a way that is consistent with their chosen values. Subjects with knowledge of their disturbing thoughts experience them only as a thought and become aware of the dysfunctional nature of their current program and instead of responding to it, they do what is important to them in life and in line with their values. As a result, acceptance and commitment group therapy can help reduce rumination in patients with generalized anxiety disorder (Demherdi et al., 2018). In fact, it was explained to the subjects that internal events, thoughts, feelings and emotions are not problematic by themselves, but the way we relate to these events should be changed. For this purpose, the component of acceptance was introduced in this treatment and metaphors were used by participating in group discussion. Among the metaphors used in this case was being stuck in the swamp. It was explained to the subjects that the more they struggle in this flow, the more they get trapped in the swamp, and this can be a symbol of its conditions during repetition and rumination (Garivani et al., 2021). Like other studies, the current research has faced some limitations. Among other things, due to the lack of long-term access to patients with generalized anxiety disorder, it was not possible to conduct a follow-up period in order to evaluate the continuity of effectiveness. The target sample was selected only from people with generalized anxiety disorder who referred to daily psychiatric treatment centers in Golpayegan city, and this issue makes the generalization of the results cautious. In line with the limitations of this research, it is suggested to conduct follow-up studies in order to investigate the long-term effects of treatment based on acceptance and commitment, and for greater generalizability, research should be conducted on a larger sample size of people with generalized anxiety disorder. It is suggested that educational workshops be held for counselors and therapists active in the field of this disorder to become more familiar

with the principles and techniques of this training.

Diabetic patients have many problems and most diabetic patients have type 2 diabetes. Therefore, the purpose of this research was to determine the effectiveness of compassion-based education on life expectancy, health-enhancing lifestyle, and health persistence in type 2 diabetic patients.

The findings of this research showed that compassion-based education increased life expectancy in type 2 diabetic patients. This result was in line with the results of the researches of Umphrey et al. (2021), Seyed Jaafari et al. In explaining these findings based on the research of Lathran et al. (2020), it can be said that compassion-based education can be considered as an emotional coping strategy. This structure is an important structure in regulating and modulating people's reactions to uncomfortable situations such as failure, rejection, shame and other negative events. Therefore, through self-compassion, a person creates an emotional security that allows him to see himself clearly without fear of self-blame and has the opportunity to more accurately understand and correct inconsistent patterns of thought, emotion and behavior. Self-compassion is a skill and ability that is considered a quality of kindness, gentleness, a sense of inner connection, and helping people find hope when faced with life's difficulties. In addition, the techniques used in compassion-based education are effective in reducing many distresses; Research has shown that an important aspect of compassion-based education is helping people improve and develop acceptance, openness, care, and proper communication with painful inner experiences. This training method helps people to develop feelings of warmth and emotional response when they are involved in the healing process, which increases life expectancy through self-compassion. Another important point is that type 2 diabetic patients are often worried because of the sensitivity of the disease and the problems caused by it, and this worry brings anxiety and depression. In fact, when a person has anxiety and depression, he acts passively and unable to perform many activities and social relations. Compassion-based training causes high-compassionate individuals to have self-compassion when experiencing unpleasant events and state that all humans make mistakes, and as a result experience less negative emotions.

They give more accurate and realistic answers to events and are more hopeful in life. As a result, it seems logical that the teaching method based on compassion can play an effective role in increasing life expectancy in type 2 diabetic patients.

Also, the findings of this research showed that compassion-based education increased the health-promoting lifestyle in type 2 diabetic patients. This result was in line with the results of the researches of Esadi Bijaei et al. (1400), Kazemi et al. In explaining these findings based on the research of Kazemi et al. (2020), it can be said that education based on compassion plays an important role in health and people with involvement and performing related skills can gain happiness and well-being and improve them. This educational method makes it possible to create more adaptive and alternative activities and behaviors by using experiences that help patients with type 2 diabetes to face negative life events and deal with them well. Another important point is that compassion-based education uses techniques such as compassion, empathy, and kindness to oneself and others, and skills such as compassionate attention, compassionate self-image, compassionate feeling, compassionate reasoning, soothing and joyful sensory experience, and compassionate behavior. These techniques and skills cause: People improve their relationships with others and life; understand themselves and others better; Know their own needs and those of others, respect individual differences, become aware of their own and others' strengths and weaknesses, and establish positive and constructive interactions with others. In addition, education based on compassion plays an important and effective role in maintaining and promoting health. In this way, people learn to be kind to themselves, to have a common and intimate feeling with others, to be aware of their life conditions, and to respond to issues and problems without judgment. As a result, compassion-based education is defined as the quality of contact with sufferings and injuries and the feeling of helping to solve problems, and is associated with positive psychological components such as altruism, happiness, and self-kindness. Therefore, the mentioned educational method, through increasing attention and kindness to oneself, can increase health-related behaviors, including health-enhancing lifestyle in type 2 diabetic patients.

In addition, the findings of this research showed that compassion-based education increased health resilience in type 2 diabetic patients. This result was in line with the results of Seyedjaafari et al. (2020), Asadi Bejaieh et al. (2021) and Ghatour et al. (2018). In explaining these findings, based on the research of Tao et al. (2021), it can be said that compassion-based education can increase social support of people by applying kindness to oneself and others and provide the basis for improving adaptation, happiness and hope. In addition, this educational method can strengthen positive emotional states in a person and can protect a person from negative emotional states. Therefore, education based on compassion increases the use of positive emotions in relation to themselves and others, and such people are more successful in solving life problems and gain a more positive and optimistic approach to life. In addition, compassion is an important human force that is considered as a quality of kindness, gentleness, a sense of inner connection and help to hope when facing life's difficulties. Because type 2 diabetic patients have a lower level of resistance and tenacity than non-diabetic people due to the many problems they face. Therefore, according to the mentioned materials, it seems logical that the teaching method based on compassion can play an effective role in increasing health resilience in type 2 diabetic patients.

Every research faces limitations during its implementation. The important limitations of the current research include the use of non-random targeted sampling method, failure to investigate the effectiveness of the compassion-based education method in the short-term and long-term follow-up stages, the use of self-reporting tools to collect data, and the limitation of the research population to type 2 diabetic patients who have a file in the association. Zahedan city diabetes noted. Considering the above limitations, among the important suggestions of the current research, we can mention the use of random sampling methods, the investigation of the effectiveness of the teaching method based on compassion on the research variables, and conducting research on type 2 diabetic patients in other cities and even patients with other diseases. Another research proposal is to compare the effectiveness of compassion-based education with other education methods, including mindfulness education, positivity education, and acceptance and commitment education, etc.

According to the results of the present study, i.e., the effectiveness of the compassion-based training method on increasing life expectancy, health-promoting lifestyle and health persistence in type 2 diabetic patients, it is suggested: Counselors, clinical psychologists, and therapists should use compassion-based education to increase psychological and health-related variables. It is suggested that the officials of counseling centers and clinics and psychological services to improve the psychological characteristics of their clients, especially in terms of life expectancy, health-promoting lifestyle and health tenacity, use counselors and professionals trained in the field of compassion-based education. Another suggestion is that the officials of counseling and psychological service centers and clinics require their counselors, psychologists, and therapists to take a compassion-based training course. Therefore, they can intervene and improve psychological characteristics in vulnerable groups, including type 2 diabetic patients, in a more appropriate and desirable way using the compassion-based education method.

Conflict of Interest

According to the authors, this article has no financial sponsor or conflict of interest.

References

- Amini, R., Najafi, H., Samari, B., Khodaveisi, M., & Tapak, L. (2020). The effect of using a home care program on the treatment adherence of patients with type 2 diabetes. *Journal of Education and Community Health*, 7(3), 193-187.
- Asadi Bejaieh, J. S., Amiri Majd, M., Ghamari, M., & Fathi-Aghdam, Gh. (2021). The effectiveness of self-compassion training on life satisfaction and resilience of elderly women. *Journal of Psychology of Aging*, 7(1), 55-67.
- Azazi Bojunordi, E., Ghadampur, S., Moradi Shakib, A., & Ghazbanzadeh, R. (2020). Prediction of corona anxiety based on cognitive emotion regulation strategies, health stubbornness and death anxiety in diabetic patients. *Journal of Psychiatric Nursing*, 8(2), 34-44.
- Bartone, P. T., & Homish, G. G. (2020). Influence of hardiness, avoidance coping, and combat exposure on depression in returning war veterans: A moderated-mediation study. *Journal of Affective Disorders*, 265, 511-518.
- Carels, R. A., Miller, J. C., Shonrock, A. T., Byrd, R., & Haley, E. (2021). Exploring the addition of self-compassion skills training to a behavioral weight loss program delivered using video conferencing software. *Journal of Contextual Behavioral Science*, 21, 196-202.
- Dasht Bozorgi, Z., & Shamshirgaran, M. (2018). The effectiveness of teaching positivity on social competence and health tenacity in nurses. *Research Journal of Positive Psychology*, 4(2), 13-24.
- Frederick, C., Hammersmith, A., & Gilderbloom, J. H. (2019). Putting 'place' in its place: Comparing place-based factors in interurban analyses of life expectancy in the United States. *Social Science & Medicine*, 232, 148-155.
- Gebhardt, W. A., Vander Doef, M., & Paul, L. B. (2001). The revised health hardiness inventory (RHHI-24): Psychometric properties and relationship with self-reported health and health behavior in two Dutch samples. *Health Education Research*, 16(5), 579-592.
- Gedik, Z. (2018). Self-compassion and health-promoting lifestyle behaviors in college students. *Psychology Health and Medicine*, 24(1), 1-7.
- Ghafarzadeh Almasi, N., Haj Alizadeh, K., & Tajeri, B. (2021). Comparing the effectiveness of stress management training and treatment based on acceptance and commitment on blood sugar control and quality of life of patients with type 2 diabetes. *Diabetes Nursing Quarterly*, 9(2), 1367-1384.
- Ghatour, Z., Poryahya, S. M., Davarnia, R., Salimi, A., & Shakarami, M. (2018). The effect of compassion-focused therapy (CFT) on resilience in women with multiple sclerosis (MS). *Armaghane Danesh Journal*, 23(3), 363-350.
- Gilbert, P. (2010). Compassion focused therapy special issue. *International Journal of Cognitive Therapy*, 3(7), 197-201.
- Grodin, J., Clark, J. L., Kolts, R., & Lovejoy, T. I. (2019). Compassion focused therapy for anger: A pilot study of a group intervention for veterans with PTSD. *Journal of Contextual Behavioral Science*, 13, 27-33.
- Haley, E. N., Dolbier, C. L., Carels, R. A., & Whited, M. C. (2022). A brief pilot self-compassion intervention for women with overweight/obesity and internalized weight bias: Feasibility, acceptability, and future

- directions. *Journal of Contextual Behavioral Science*, 23, 59-63.
- Hemati Maslak Pak, M., Alipour, Sh., Aghakhani, N., & Khalkhali, H. (2020). The effect of family-oriented care on treatment compliance in patients with type 2 diabetes. *Scientific Journal of Birjand University of Medical Sciences*, 27(2), 171-161.
- Heydari Al-Kasir, Z., & Dasht Bozorgi, Z. (2021). The effect of positivity training on optimism, life expectancy and self-management in patients with diabetes. *Journal of Culture and Health Promotion*, 5(1), 108-115.
- Jiang, J., Luo, L., Xu, P., & Wang, P. (2018). How does social development influence life expectancy? A geographically weighted regression analysis in China. *Public Health*, 163, 95-104.
- Jung-In, L., Soon-Yi, K., & Ki-Soon, S. (2007). Effects of self-efficacy, health related hardiness on a health promoting lifestyle of middle-aged people. *The Journal of Korean Academic Society of Nursing Education*, 13(2), 177-183.
- Kalangadan, A., Puthiyamadathil, S., Koottat, S., Rawther & Beevi. (2020). Sociodemographics, clinical profile and health promotion behaviour of people with type 2 diabetes mellitus. *Clinical Epidemiology and Global Health*, 8(3), 845-849.
- Kauppila, T., Eriksson, J. G., Honkasalo, M., Raina, M., & Laine, M. K. (2019). Relationship between number of contacts between previous dropouts with type 2 diabetes and health care professionals on glycaemic control: A cohort study in public primary health care. *Primary Care Diabetes*, 13(5), 468-473.
- Kazemi, A. P., Ohadi, H., & Nejat, H. (2020). The effectiveness of compassion-based therapy on feelings of loneliness, self-care behaviors and blood sugar in patients with diabetes. *Journal of Nursing Rehabilitation Research*, 6(3), 42-49.
- Kelly, S., Melnyk, B. M., & Hoying, J. (2020). Adolescents as agents of parental healthy lifestyle behavior change: COPE healthy lifestyles TEEN program. *Journal of Pediatric Health Care*, 34(6), 575-583.
- Lathren, C. R., Sheffield-Abdullah, K., Sloane, P. D., Bluth, K., Hickey, J. V. T. S., Wretman, C. J., & et al. (2021). Certified nursing assistants' experiences with self-compassion training in the nursing home setting. *Geriatric Nursing*, 42(6), 1341-1348.
- Lathren, C. R., Sloane, P. D., Zimmerman, S., Bluth, K., Silbersack, J., & Wretman, C. J. (2020). Mindful self-compassion training for nursing assistants in long-term care: Challenges and future directions. *Journal of the American Medical Directors Association*, 21(5), 708-709.
- Lee, S., McClain, C., Behr, D., & Meitinger, K. (2020). Exploring mental models behind self-rated health and subjective life expectancy through web probing. *Field Methods*, 32(3), 309-326.
- Levantesi, S., Nigri, A., & Piscopo, G. (2022). Clustering-based simultaneous forecasting of life expectancy time series through long-short term memory neural networks. *International Journal of Approximate Reasoning*, 140, 282-297.
- Lu, J., Zhang, C., Xue, Y., Mao, D., Zheng, X., Wu, S., & Wang, X. (2019). Moderating effect of social support on depression and health promoting lifestyle for Chinese empty nesters: A cross-sectional study. *Journal of Affective Disorders*, 256, 495-508.
- Mantelou, A., & Karakasidou, E. (2017) The effectiveness of a brief self-compassion intervention program on self-compassion, positive and negative affect and life satisfaction. *Psychology*, 8, 590-610.
- Mishra, S. R., Waller, M., Chung, H. F., & Mishra, G. D. (2022). Epidemiological studies of the association between reproductive lifespan characteristics and risk of Type 2 diabetes and hypertension: A systematic review. *Maturitas*, 155, 14-23.
- Najaransab, M., & Dashtbozorgi, Z. (2019). The effect of motivational interviewing on health-promoting lifestyle and blood pressure of women with eating disorders. *Journal of Health Psychology*, 8(3), 103-118.
- Parker, M., Bucknall, M., Jagger, C., & Wilkie, R. (2020). Population-based estimates of healthy working life expectancy in England at age 50 years: analysis of data from the English Longitudinal Study of Ageing. *The Lancet Public Health*, 5(7), 395-403.
- Pawaskar, M., Iglay, K., Witt, E. A., Engel, S. S., & Rajpathak, S. (2018). Impact of the severity of hypoglycemia on health - Related quality of life, productivity, resource use, and costs among US patients with type 2 diabetes.

- Journal of Diabetes and Its Complications, 32(5), 451-457.
- Rajaei, S., & Sederposhan, N. (2020). The effectiveness of mindfulness-based compassion therapy on psychological well-being and life expectancy in women with multiple sclerosis. *Islamic Lifestyle Quarterly with a focus on health*, 4(2), 143-134.
- Seyed Jafari, J., Borjali, A., Sherafati, Sh., Panahi, M., Dehnashi Latan, T., & Obodiat, S. (2020). The effectiveness of compassion-focused therapy on resilience and life expectancy of people with type 2 diabetes. *Journal of Psychological Science*, 19(92), 955-945.
- Seyed Jafari, J., Jedi, M., Mousavi Jashani, R., & Hosseini, E. (2019). The effectiveness of compassion-focused therapy on life expectancy in the elderly. *Journal of Psychology of Aging*, 5(2), 168-157.
- Snyder, C. R., Harris, C., Anderson, J. R., Holleran, S. A., Irving, L. M., Sigmon, S. T., & et al. (1991). The will and the ways: Development and validation of an individual-differences measure of hope. *Journal of Personality and Social Psychology*, 60(4), 570-585.
- Tao, J., He, K., & Xu, J. (2021). The mediating effect of self-compassion on the relationship between childhood maltreatment and depression. *Journal of Affective Disorders*, 291, 288-293.
- Tonnies, T., Baumert, J., Heidemann, C., Vonder Lippe, E., Brinks, R., & Hoyer, A. (2021). Diabetes free life expectancy and years of life lost associated with type 2 diabetes: projected trends in Germany between 2015 and 2040. *Population Health Metrics*, 19(38), 1-10.
- Trindade, I. A., Ferreira, C. F., & Pinto-Gouveia, J. (2020). Acceptability and preliminary test of efficacy of the mind programme in women with breast cancer: An acceptance, mindfulness, and compassion-based intervention. *Journal of Contextual Behavioral Science*, 15, 162-171.
- Umphrey, L. R., Sherblom, J. C., & Swiatkowski, P. (2021). Relationship of self-compassion, hope, and emotional control to perceived burdensomeness, thwarted belongingness, and suicidal ideation. *Crisis*, 42(2), 121-127.
- Walker, S. N., Sechrist, K. R., & Pender, N. J. (1987). The health-promoting lifestyle profile: development and psychometric characteristics. *Nursing Research*, 36(2), 76-81.
- Xu, Y., Su, X., Lu, X., Zhang, M., Wang, W., Ding, D., & et al. (2019). The mediating effect of health-related hardiness on the degree of physical disability and perceived stress in Chinese female patients with Neuromyelitis Optica spectrum disorder. *Clinical Trial*, 35, 67-72.
- Xue, Y., Lu, J., Zheng, X., Zhang, J., Lin, H., Qin, Z., & et al. (2021). The relationship between socioeconomic status and depression among the older adults: The mediating role of health promoting lifestyle. *Journal of Affective Disorders*, 285, 22-28.
- Yang, Y., Zhang, M., & Kou, Y. (2016). Self-compassion and life satisfaction: The mediating role of hope. *Personality and Individual Differences*, 98(3), 91-95.