



The Effect of Schema Therapy on Psychological Capital and Vulnerable Attachment in Women with Breast Cancer

Nasrin Alizadeh¹, Bahram Mirzaian^{2,*} and Ghodratollah Abbasi²

¹Sari Branch, Islamic Azad University, Sari, Iran

²Department of Psychology, Sari Branch, Islamic Azad University, Sari, Iran

*Corresponding author: Department of Psychology, Sari Branch, Islamic Azad University, Sari, Iran. Email: mirzaian.ba@gmail.com

Received 2021 June 13; Accepted 2021 October 18.

Abstract

Background: Cancer causes psychological problems, such as anxiety, depression, post-traumatic stress, feelings of sadness, and anger, and family problems.

Objectives: This study aimed to evaluate the effect of schema therapy on psychological capital and vulnerable attachment in women with breast cancer.

Methods: The research method was quasi-experimental with a pretest-posttest design and a control group. The statistical population included all women with breast cancer admitted to the Imam Khomeini Hospital, Tehran, Iran, from 23/07/2019 to 20/11/2019. The total number of the patients was 51, of whom 30 were purposefully selected and randomly assigned to an experimental and a control group (15 people in each group). The experimental group was exposed to schema therapy for 11 weekly 90-minute sessions, while the control group did not receive any training. The Luthans Psychological Capital Questionnaire and the Vulnerable Attachment Questionnaire were used to collect data. The collected data were analyzed using multivariate analysis of covariance in SPSS-21 software.

Results: The results of paired t-test showed a significant difference between the mean scores of the components of psychological capital and vulnerable attachment in the two experimental and control groups. Therefore, it can be stated that the effectiveness of schema therapy was associated with increased self-efficacy ($P = 0.013$), hope ($P = 0.001$), resilience ($P = 0.034$), optimism ($P = 0.001$), and decreased vulnerable attachment ($P = 0.029$).

Conclusions: Based on the findings of this study regarding the effect of schema therapy on improving psychological capital and reducing vulnerable attachment, it can be concluded that schema therapy can be used as an effective intervention along with other therapies to reduce the problems of women with breast cancer.

Keywords: Schema Therapy, Self-efficacy, Hope, Resilience Psychological, Optimism, Psychology, Object Attachment, Breast Cancer

1. Background

Cancer is a group of diseases characterized by uncontrolled and abnormal cell growth and proliferation (1). Breast cancer is the second most often diagnosed cancer globally, with an estimated 2.1 million new diagnoses and about 627,000 deaths in 2018 (2). In Iran, breast cancer accounts for 16% of the total cancer cases and ranks first among all malignancies in women (3). Breast cancer is a biologically and clinically heterogeneous disease, with several recognized histotypes and molecular subtypes with different etiologies, profiles of risk factors, responses to treatments, and prognoses (4). People with breast cancer have an increased survival rate and live longer than those with other cancers but its complications and stress, can affect the psychological well-being of this group (5).

Cancer causes physical problems, such as hair loss or loss of a limb, psychological problems, such as anxiety, depression, post-traumatic stress, feelings of sadness, deprivation, and anger, family problems, and problems with psychological capital (6). Definitions of social capital depend partly on the source; however, social capital is generally regarded as resources that can be accessed from groups or networks to which individuals belong. It is further divided into individual and collective social capital. Psychological capital is one of the essential characteristics that make one adapt to difficult living conditions (7). Psychological capital has a positive and significant relationship with social capital (8). From an explanatory point of view, social capital takes precedence over psychological capital. Therefore, the lack of weakness of social capital leads to the isolation of the individual and negative indi-

vidualism and ultimately leads to the weakening of psychological capital (9). Psychological capital enables people to cope better and more constructively in stressful situations, experience less tension, have higher capabilities when facing difficulties, achieve an enlightened view of themselves, and be less affected by daily events (10). Cancer patients have problems with the four components of psychological capital (11). The construct of hope is one's ability to set goals, visualize the necessary paths toward the goals, and have the necessary motivation to achieve the goals (12). Optimism refers to positive causal attributions and how people explain positive and negative events and expect a positive outcome. Resilience refers to one's capacity to respond to their abilities to perform a particular task (13). Self-efficacy is a measure of one's confidence in their ability to perform a series of actions, which is associated with one's adaptation to cancer (14). Kordan et al. in a study showed a positive and significant relationship between psychological capital and cancer patients' resilience (15). Also, Rasouli Badrani et al. showed in a study that the components of psychological capital, namely optimism, self-efficacy, and resilience, had a significant positive relationship with quality of life in patients with breast cancer (16).

Researchers and clinicians have increasingly focused on attachment theory as a framework for studying illness and disease adjustment in recent years (17). Attachment insecurity is associated with difficulties in adapting to cancer (18). Attachment can be examined from two perspectives: the amount of value one has for themselves, and the amount of value one places on others. Among the introduced attachment styles (safe, anxiety, avoidance, and ambivalence), some experts believe that atmosphere and insecurity have a pathological basis (19). Research evidence after developing various attachment styles has concluded that adjoining behaviors can generally be considered one of the most vulnerable attachment styles (20). Studies have shown a positive and significant relationship between anxiety attachment and psychological disturbance in women with breast cancer (17, 21, 22).

Schema therapy is one of the treatments that has not been considered effective on psychological capital and vulnerable attachment in women with breast cancer. Schema therapy is an innovative and integrated method founded by Young and Behary (23). According to Stopa and Waters, psychological damage results from the formation and stabilization of early maladaptive schemas. It is hypothesized that childhood experiences of neglect or abuse can lead to early maladaptive schemas (24). The differences between schema therapy and traditional cognitive therapy include more emphasis on early childhood experiences, greater use of emotional techniques such as guided daydreaming,

use of therapeutic relationships as a means to change, and longer treatment periods due to resistance. Khademi et al. found in a study that schema-based interventions were significant in the resilience of women with breast cancer (25). Moreover, Amiri et al. found in a study that schema therapy reduced rumination and depression in cancer patients (26).

Women with breast cancer experience anxiety and depression when dealing with diagnosis, prognosis, and treatment options. Cancer patients often develop negative thoughts after the onset of the disease, leading to various psychological disorders. According to cognitive approaches, the most important psychological factors affecting medical diseases are early maladaptive schemas that cause immune and disease changes. It seems that by intervening and performing schema therapy, the vicious cycle of incompatible schemas can be disrupted, contributing to the treatment process's effectiveness. As mentioned, one of the effective therapeutic approaches to reduce the psychological effects of physical illnesses is schema therapy (27). Schema therapy helps clients design and execute behavioral tasks to replace consistent behavioral patterns with inappropriate and ineffective coping responses. This, in turn, can increase happiness, improve mental health, and reduce physical problems in people with breast cancer (28).

2. Objectives

Given the above and epidemiological studies on the high prevalence of psychological disorders in cancer patients (29), this study aimed to investigate the effect of schema therapy on psychological capital and vulnerable attachment in women with breast cancer.

3. Methods

The research method was quasi-experimental with a pretest-posttest design and a control group. The statistical population included all women with breast cancer admitted to the Imam Khomeini Hospital, Tehran, Iran, from 23/07/2019 to 20/11/2019. Of the total population, 30 patients, according to statistics experts (30), were purposefully and accessibly selected and assigned to an experimental and a control group (each group with 15 women) based on a table of random numbers. The experimental group was exposed to schema therapy for 11 weekly 90-minute sessions, while the control group did not receive any training. The inclusion criteria were (1) diagnosis of breast cancer and exposure to chemotherapy; (2) no chronic diseases; (3) no problems and history of psychiatric diseases; (4) one to

five years of illness; (5) age between 30 and 50 years; (6) ability to answer questions (no physical problem to fill out questionnaires); and (7) filling out the informed consent and residency form in Tehran. The exclusion criteria included (1) dissatisfaction with participation in research; (2) participating in another psychological intervention; and (3) absence from more than two consecutive sessions. Regarding ethical considerations, the necessary permission was obtained from the university and the vice chancellor for research to conduct the research, and the letter of introduction required to perform all the research steps was received. The information about how to perform was explained to the subjects, they can ask all their questions with enough time. They were assured that the information and results of the investigation would be kept strictly confidential by the project manager. The following three tools were used to collect data: information data (age, education, marital status, and history of disease), Luthans Psychological Capital Questionnaire, and Vulnerable Attachment Questionnaire.

3.1. Luthans Psychological Capital Questionnaire

Luthans Psychological Capital Questionnaire was used to measure psychological capital. The questionnaire consists of 24 items with four subscales of hope, resilience, optimism, and self-efficacy. Each subscale consists of six items, and each item is rated on a 6-point Likert scale (strongly disagree to strongly agree). To calculate the score of psychological capital, the score of each subscale is calculated, and the score of psychological capital is obtained from the sum of the subscales' scores. The minimum and maximum scores of items in the questionnaire are 24 and 144, respectively. Higher scores in the questionnaire show better mental health status. The confirmatory factor analysis results indicated that this test had factors and structures desired by the test manufacturers. Using factor analysis and structural equations, Luthans reported the ratio of this test to 24.6, which confirmed the factor validity of the test (31). The reliability of the questionnaire in Iran has been reported 0.87 based on Cronbach's alpha (32).

3.2. Vulnerable Attachment Questionnaire

A 22-item questionnaire was used by Bifulco et al. to assess the vulnerable attachment styles. The items of the questionnaire are rated on a 5-point Likert scale (strongly disagree = 1 to strongly agree = 5). Scores in the questionnaire range from 22 to 110, with lower scores indicating more favorable mental states (33). Bifulco et al. documented this questionnaire's validity based on heuristic factor analysis and reported Cronbach's alpha of 0.82 and 0.67 and the retest reliability of 0.73 and 0.65 (33). In a study

on 30 people, Cronbach's alpha for the questionnaire was 0.83. Subsequently, exploratory factor analysis was performed by rotating the varimax nugget (based on the answers of the study's final sample, which had a sample size of 345 people) based on principal components on 22 questions. Evidence showed that the questionnaire had favorable conditions for assessing the totality of vulnerable attachments (20).

3.3. Intervention

The therapist (a Ph.D. student) conducted weekly 90-minute schema therapy sessions for the experimental group under the supervision of supervisors and counselors according to the guidelines and tactics of Young's schema therapy (34). It should be noted that this treatment package has been used in reputable studies such as Goli et al.'s (35), Khademi et al.'s (25), and Ansari Shahidi's studies (36). As shown in Table 1, a summary of the schema therapy sessions is provided.

In this study, descriptive statistical methods, such as mean and standard deviation, were used, and the Shapiro-Wilk test was used to check the normality of the distribution. The paired-samples t-test was used to compare the mean scores in each group before and after the intervention, the independent samples t-test was run to examine intergroup differences, and the chi-square test was used to compare the frequencies of the qualitative variables for the two groups. Also, SPSS-21 was used to investigate the assumption of homogeneity of variances from the Leven and Box test and analyze data from multivariate variance (MANCOVA).

4. Result

The mean age was 30 years in both experimental and control groups. The results of the independent samples t-test did not show any difference between the groups in terms of the patients' age ($P = 0.55$). Also, an analysis of the patients' demographic variables using the Fisher exact test indicated no significant difference between the groups in terms of education, marital status, and history of the disease ($P < 0.05$) (Table 2).

The results of paired t-test showed a significant difference in the mean scores of the components of psychological capital and vulnerable attachment between the groups. Therefore, it can be stated that the effectiveness of schema therapy was associated with increased self-efficacy ($P = 0.013$), hope ($P = 0.001$), resilience ($P = 0.034$), optimism ($P = 0.001$), and decreased vulnerable attachment ($P = 0.029$) (Table 3).

Table 1. Content Title of Schema Therapy Sessions

Meeting	Goals Content	Goals Meetings
1	Introducing the intervention	Communication and empathy, how early maladaptive schemas are formed, schema functions, and maladaptive coping styles and responses
2	Pre-test run	Assessing the initial condition of the group and conceptualizing the patients' problem according to the schema-based approach
3	Defining schema therapy	Understanding the concepts of schema therapy and how to use it, its evolutionary roots, and areas
4	Training and recognizing early maladaptive schemas	Accurate and scientific learning of early maladaptive schemas, training, and practice of two cognitive techniques including a schematic validity test and a new definition of schematic confirming evidence
5	Introducing the areas of early incompatible schemas	Familiarity with the areas of incompatible schemas and their diagnosis and identifying disrupted areas of the relevant schema
6	Teaching and understanding the concept of cognitive coordination and dysfunctional coping responses	Recognizing ineffective coping responses with personal experiences and writing a schema registration form during daily life and when schemas are evoked
7	The scheme of assessing and training schema therapy	Recognizing and diagnosing maladaptive individual schemas to identify feelings toward parents and help release their blocked emotions
8	Using cognitive schema therapy strategies	Improving dysfunctional coping schemes and styles, finding new ways to communicate, and coping with avoidance, surrender, and extreme compensation
9	Using empirical schema therapy strategies	Changing and improving the emotional level of maladaptive schemas, performing imaginary dialogue, identifying unsatisfied emotional needs, and trying against schemas at the emotional level
10	Teaching patterning methods	Replacing healthy and efficient behaviors with inconsistent behaviors, mental imaging of problematic situations, and exercising healthy illustrative behaviors
11	Post-test run	Evaluating the effectiveness of schema therapy, overcoming barriers to behavior change, summarizing, and concluding

The Wilks' Lambda results showed that the effect of schema therapy was significant on at least one of the variables (Wilks' Lambda = 0.395, $P < 0.01$). Accordingly, by establishing the assumptions of Wilks' Lambda to control the significant effect of pre-test scores, it was shown that the mean scores of self-efficacy ($P = 0.009$), hope ($P = 0.021$), resilience ($P = 0.025$), optimism ($P = 0.010$), and vulnerable attachment ($P = 0.020$) were significantly different after the intervention in the groups (Table 4).

5. Discussion

This study aimed to evaluate the effect of schema therapy on psychological capital and vulnerable attachment in women with breast cancer. Based on the first finding of this study, schema therapy promotes psychological capital and its components (self-efficacy, hope, resilience, and optimism) in women with breast cancer. This finding is consistent with the results of research by Khademi et al. (25), Carmona-Halty et al. (37), Luthans and Youssef-Morgan (38), and Videler et al. (39). Khademi et al. found in a study that schema-based interventions were significant in the resilience of women with breast cancer (25). Also, Amiri et al.

found in a study that schema therapy reduced rumination and depression in cancer patients (26).

Research has shown that psychological capital can be used to treat mental illness, increase hope, mental effort, and resistance, strengthen the defense force, and increase the level of psychological well-being (40). Since the components of psychological capital cover most aspects of life, it is predicted that people with breast cancer will have problems in this area, and their rate of psychological capital will be much lower than that of normal people. A schema is a memory package whose content is shaped by one's teachings over time. Factors, such as the biological foundations of individuals, and factors related to their educational environment, such as family, culture, growing experiences, and major events, affect the emergence of schemas. According to Mami and Safarnia, early maladaptive schemas are emotional and cognitive patterns of self-harm formed in mind at the beginning of growth and development and continue throughout life. Early maladaptive schemas have opposite characteristics. They are deep and pervasive patterns or themes composed of memories, emotions, cognitions, and bodily feelings. They are formed in childhood and adolescence, continue throughout life about oneself and the relationship with others, and are very inefficient

Table 2. The Demographic Characteristics of the Experimental and Control Groups ^a

Variable	Experimental	Control	P-Value
Education			0.772 ^b
Bachelor's degree and lower	9 (60)	8 (53.33)	
MSc	4 (26.66)	5 (33.33)	
PhD	2 (13.34)	2 (13.34)	
Total	15 (100)	15 (100)	
Marital status			0.807 ^b
Single	3 (20)	8 (53.33)	
Married	10 (66.66)	5 (33.33)	
divorced	2 (13.34)	2 (13.34)	
Total	15 (100)	15 (100)	
History of disease			0.496 ^b
1 year	4 (26.66)	7 (46.66)	
2 years	6 (40)	4 (26.66)	
3 years	3 (20)	2 (13.34)	
4 years and more	2 (13.34)	2 (13.34)	
Total	15 (100)	15 (100)	
Age	38.667 ± 5.287	38.600 ± 5.937	0.551 ^c

^aValues are expressed as No. (%) or mean ± SD.

^bFisher Exact test

^ct-test.

(41). It can be concluded that the purpose of schema therapy is to help one better meet their basic emotional needs. Schema therapy helps the therapist to define the chronic and profound problems of breast cancer patients and to correct it in a comprehensible way.

Based on another finding of the present study, schema therapy improves vulnerable attachment in women with breast cancer. This finding is consistent with the results of Masoodi et al. (42). They found a significant relationship between attachment styles and death anxiety through the mediation of early maladaptive schemas in cancer patients. They also realized that early maladaptive schemas as a mediating variable could affect the relationship between attachment styles and death anxiety (42). Therefore, combining psychological interventions to change unhealthy behavioral patterns and consulting with psychologists to identify and modify early maladaptive schemas and essential physical therapies can effectively reduce psychological trauma in cancer patients.

Safe people usually do not experience rejection when their parents are satisfied with their security and social connection. They perform independently to separate from the family, and by having a sense of responsibility toward others or an orientation toward long-term life goals, they set goals and achieve realistic goals. People with a secure

attachment style will cope better with this stressful situation and have fewer psychological problems due to the lack of early maladaptive schemas. Young et al. believe that such people suffer from more maladaptive schemas (34), causing anxiety in them. In this regard, Camara in a study showed that the formation of defective schemas causing rejection, self-harm, following, and guidance by others led to symptoms of anxiety and depression in people with vulnerable attachment. This can have a very devastating effect on one's physical and mental health (43). Schema therapy works to change this distorted cognition to make one's self-knowledge, environment, and future in line with reality. In other words, through schematic therapy, we can change our cognition and improve attachment relationships that completely make clear progress in knowledge of ourselves, the environment, and the future. Measuring people's attachment and implementing training programs can improve people's level of mental well-being, make their social relationships more meaningful, and motivate them to live happier lives (44).

According to the research background and the findings of the present study, showing that schema therapy has a significant effect on improving attachment, it can be concluded that schema therapy targets early maladaptive schemas, fundamental beliefs, feelings, emotions, child-

Table 3. The Comparison of Mean and SD of the Psychological Capital and Vulnerable Attachment Scores in the Two Groups Before and After the Intervention

Variables	Before	After	P-Value ^a
Psychological capital			
Efficacy			
Experimental	15.066 ± 0.883	19.400 ± 2.773	0.013
Control	15.333 ± 1.379	12.400 ± 2.414	0.091
Hope			
Experimental	16.600 ± 1.352	21.066 ± 3.712	0.001
Control	15.133 ± 1.302	13.200 ± 1.567	0.203
Resilience			
Experimental	17.666 ± 1.447	23.200 ± 3.447	0.034
Control	19.466 ± 1.302	15.866 ± 1.641	0.910
Optimism			
Experimental	21.133 ± 1.552	26.553 ± 3.778	0.001
Control	20.466 ± 1.864	16.733 ± 2.658	0.213
Total score			
Experimental	70.466 ± 2.614	88.933 ± 7.731	0.005
Control	70.400 ± 2.640	58.200 ± 4.783	0.403
Vulnerable attachment			
Experimental	94.666 ± 3.811	61.667 ± 8.440	0.029
Control	69.600 ± 5.138	76.866 ± 4.853	0.817

^a Paired test**Table 4.** The MANCOVA Analysis Results Regarding the Effect of Schema Therapy on Psychological Capital and Vulnerable Attachment

Source	Dependent Variable	df	Mean Square	F	P-Value	Effect Size	Observed Power
Pre-test	Efficacy	1	6.31	1.05	0.31	0.04	0.16
	Hope	1	1.74	0.21	0.64	0.00	0.07
	Resilience	1	2.49	0.38	0.54	0.01	0.09
	Optimism	1	0.44	0.04	0.83	0.03	0.05
	Vulnerable Attachment	1	1.31	0.03	0.84	0.00	0.14
Group	Efficacy	1	48.335	8.043	0.009	0.259	0.77
	Hope	1	50.242	6.141	0.021	0.211	0.66
	Resilience	1	37.521	5.710	0.025	0.199	0.62
	Optimism	1	77.804	7.870	0.010	0.255	0.76
	Vulnerable Attachment	1	295.756	6.256	0.020	0.214	0.66

hood memories, and adolescence, and that relationships with others improve social adjustment and eliminate attachment damage.

Considering that the statistical population of the study of all women with breast cancer admitted to the Imam Khomeini Hospital, Tehran, Iran, from 23/07/2019 to

20/11/2019. So it is possible to generalize the results to the entire population of women with breast cancer it comes with restrictions. Another limitation of this research was related to measurement; these reports are prone to distortion due to unconscious defenses, bias in response, methods of personal introduction, and social desirability, in

general. It is suggested to perform this study on a wider sample of individuals and in other centers. Also, considering that the present study is quantitative in nature, it is suggested to use qualitative research (contextual theory based on semi-structured interviews) based on clients' opinions, experts' opinions, and previous literature.

5.1. Conclusions

Based on the findings of this study regarding the effect of schema therapy on improving psychological capital and reducing vulnerable attachment, it can be concluded that schema therapy can be used as an effective intervention along with other therapies in reducing the problems of women with breast cancer. Therefore, it is recommended to implement schema therapy to improve clinical nursing practice.

Acknowledgments

We would like to thank all the staff of the Imam Khomeini Hospital and women who participated in the study. All the authors have been involved in the ideation, writing, execution, analysis, and explanation of the article.

Footnotes

Authors' Contribution: It was not declared by the authors.

Conflict of Interests: The authors report no conflicts of interest.

Ethical Approval: The study was registered at the Islamic Azad University, Sari Branch, with the ethics code IR.IAU.SARI.REC.1398.144.

Funding/Support: No financial support was received for this study.

Informed Consent: The researcher explained the study goals to the participants and obtained their written informed consent.

References

- Al Qadire M, Alsarairh M, Alomari K, Aldiabat KM, Al-Sabei S, Al-Rawajfah O, et al. Symptom Clusters Predictive of Quality of Life Among Jordanian Women with Breast Cancer. *Semin Oncol Nurs*. 2021;**37**(2):151144. doi: [10.1016/j.soncn.2021.151144](https://doi.org/10.1016/j.soncn.2021.151144). [PubMed: [33771404](https://pubmed.ncbi.nlm.nih.gov/33771404/)].
- Pashayan N, Antoniou AC, Ivanus U, Esserman LJ, Easton DF, French D, et al. Personalized early detection and prevention of breast cancer: ENVISION consensus statement. *Nat Rev Clin Oncol*. 2020;**17**(11):687-705. doi: [10.1038/s41571-020-0388-9](https://doi.org/10.1038/s41571-020-0388-9). [PubMed: [32555420](https://pubmed.ncbi.nlm.nih.gov/32555420/)]. [PubMed Central: [PMC7567644](https://pubmed.ncbi.nlm.nih.gov/PMC7567644/)].
- Fathollahi Shourabeh F, Tarverdzadeh B, Keihani M. [The impact of eight weeks of resistance training on some angiogenesis indicators in women with breast cancer]. *Iran J Obstet Gynecol Infertil*. 2017;**20**(3):9-17. Persian.
- Waks AG, Winer EP. Breast Cancer Treatment: A Review. *JAMA*. 2019;**321**(3):288-300. doi: [10.1001/jama.2018.19323](https://doi.org/10.1001/jama.2018.19323). [PubMed: [30667505](https://pubmed.ncbi.nlm.nih.gov/30667505/)].
- Baqutayan SM. The effect of anxiety on breast cancer patients. *Indian J Psychol Med*. 2012;**34**(2):119-23. doi: [10.4103/0253-7176.101774](https://doi.org/10.4103/0253-7176.101774). [PubMed: [23162185](https://pubmed.ncbi.nlm.nih.gov/23162185/)]. [PubMed Central: [PMC3498772](https://pubmed.ncbi.nlm.nih.gov/PMC3498772/)].
- Zhao J, Ma Y, Tanimoto T, Ozaki A, Chen WL, Wang JY, et al. Effects of physical activity and stress on the relationship between social capital and quality of life among breast cancer survivors. *Sci Rep*. 2020;**10**(1):17746. doi: [10.1038/s41598-020-74706-5](https://doi.org/10.1038/s41598-020-74706-5). [PubMed: [33082389](https://pubmed.ncbi.nlm.nih.gov/33082389/)]. [PubMed Central: [PMC7576207](https://pubmed.ncbi.nlm.nih.gov/PMC7576207/)].
- Sansom-Daly UM, Wakefield CE, Ellis SJ, McGill BC, Donoghoe MW, Butow P, et al. Online, Group-Based Psychological Support for Adolescent and Young Adult Cancer Survivors: Results from the Recapture Life Randomized Trial. *Cancers (Basel)*. 2021;**13**(10). doi: [10.3390/cancers13102460](https://doi.org/10.3390/cancers13102460). [PubMed: [34070134](https://pubmed.ncbi.nlm.nih.gov/34070134/)]. [PubMed Central: [PMC8158368](https://pubmed.ncbi.nlm.nih.gov/PMC8158368/)].
- Avolio BJ. *The high impact leader*. New York: Mc Grow Hill; 2006.
- Cooper CD. Just Joking Around? Employee Humor Expression As An Ingratiation Behavior. *Acad Manage Rev*. 2005;**30**(4):765-76. doi: [10.5465/amr.2005.18378877](https://doi.org/10.5465/amr.2005.18378877).
- Akbari H, Akbari ME. The comparison of three components of breast cancer in females with cancer and healthy ones: coping styles, psychological capital, and patience. *Multidiscip Cancer Investig*. 2018;**2**(3):23-9.
- Pordelan N, Hosseini S. Online career counseling success: the role of hardiness and psychological capital. *Int J Educ Vocat Guid*. 2021:1-19. doi: [10.1007/s10775-020-09452-1](https://doi.org/10.1007/s10775-020-09452-1). [PubMed: [33425066](https://pubmed.ncbi.nlm.nih.gov/33425066/)]. [PubMed Central: [PMC7778393](https://pubmed.ncbi.nlm.nih.gov/PMC7778393/)].
- Schelleman-Offermans K, Massar K. Explaining socioeconomic inequalities in self-reported health outcomes: The mediating role of perceived life stress, financial self-reliance, psychological capital, and time perspective orientations. *PLoS One*. 2020;**15**(12). e0243730. doi: [10.1371/journal.pone.0243730](https://doi.org/10.1371/journal.pone.0243730). [PubMed: [33370306](https://pubmed.ncbi.nlm.nih.gov/33370306/)]. [PubMed Central: [PMC7769277](https://pubmed.ncbi.nlm.nih.gov/PMC7769277/)].
- Essue BM, Iragorri N, Fitzgerald N, de Oliveira C. The psychosocial cost burden of cancer: A systematic literature review. *Psychooncology*. 2020;**29**(11):1746-60. doi: [10.1002/pon.5516](https://doi.org/10.1002/pon.5516). [PubMed: [32783287](https://pubmed.ncbi.nlm.nih.gov/32783287/)]. [PubMed Central: [PMC7754376](https://pubmed.ncbi.nlm.nih.gov/PMC7754376/)].
- Sadoughi M, Mehrzad V, Mohammad Salehi Z. [The Relationship between Psychological Capital and Quality of Life among Patients with Breast Cancer]. *Razi J Med Sci*. 2017;**24**(156):111-9. Persian.
- Kordan Z, Azimi Lolaty H, Mousavinasab SN, Heydari Fard J. Relationship between psychological well-being and social capital and resilience among cancer patients. *J Nurs Midwifery Sci*. 2019;**6**(3):131. doi: [10.4103/jnms.jnms_11_19](https://doi.org/10.4103/jnms.jnms_11_19).
- Rasouli Badrani M, Mahnazadeh M, Hosseini M, Hemmatipour A. The relationship between psychological capital and quality of life of women with breast cancer referred to health centers in Shushtar in 2018. *Fifth Student Research Congress Southwestern region of the country*. Behbahan. 2018.
- Nissen KG. Correlates of self-rated attachment in patients with cancer and their caregivers: a systematic review and meta-analysis. *Psychooncology*. 2016;**25**(9):1017-27. doi: [10.1002/pon.4057](https://doi.org/10.1002/pon.4057). [PubMed: [26763738](https://pubmed.ncbi.nlm.nih.gov/26763738/)].
- Brandao T, Schulz MS, Matos PM. Attachment and adaptation to breast cancer: The mediating role of avoidant emotion processes. *Eur J Cancer Care (Engl)*. 2018;**27**(2). e12830. doi: [10.1111/ecc.12830](https://doi.org/10.1111/ecc.12830). [PubMed: [29575264](https://pubmed.ncbi.nlm.nih.gov/29575264/)].
- Tacon AM. Attachment and cancer: a conceptual integration. *Integr Cancer Ther*. 2002;**1**(4):371-81. discussion 382-6. doi: [10.1177/1534735402238188](https://doi.org/10.1177/1534735402238188). [PubMed: [14664730](https://pubmed.ncbi.nlm.nih.gov/14664730/)].
- Golparvar M, Khabazian B. [The Relationship between narcissistic personality and vulnerable attachment with bullying and psychological capital]. *Clin Psychol Pers*. 2020;**13**(2):139-48. Persian. doi: [10.22070/13.2.139](https://doi.org/10.22070/13.2.139).

21. Graf J, Junne F, Ehrental JC, Schaffeler N, Schwille-Kiuntke J, Stengel A, et al. Unmet Supportive Care Needs Among Women With Breast and Gynecological Cancer: Relevance of Attachment Anxiety and Psychological Distress. *Front Psychol*. 2020;**11**:558190. doi: [10.3389/fpsyg.2020.558190](https://doi.org/10.3389/fpsyg.2020.558190). [PubMed: [33192814](https://pubmed.ncbi.nlm.nih.gov/33192814/)]. [PubMed Central: [PMC7609386](https://pubmed.ncbi.nlm.nih.gov/PMC7609386/)].
22. Vehling S, Tian Y, Malfitano C, Shnall J, Watt S, Mehnert A, et al. Attachment security and existential distress among patients with advanced cancer. *J Psychosom Res*. 2019;**116**:93-9. doi: [10.1016/j.jpsychores.2018.11.018](https://doi.org/10.1016/j.jpsychores.2018.11.018). [PubMed: [30655000](https://pubmed.ncbi.nlm.nih.gov/30655000/)].
23. Young J, Behary WT. Schema-focused therapy for personality disorders. In: Tarrrier N, Wells A, Haddock G, editors. *Treating complex cases: The cognitive behavioural therapy approach*. John Wiley & Sons Ltd; 1998. p. 340-76.
24. Stopa L, Waters A. The effect of mood on responses to the Young Schema Questionnaire: short form. *Psychol Psychother*. 2005;**78**(Pt 1):45-57. doi: [10.1348/147608304X21383](https://doi.org/10.1348/147608304X21383). [PubMed: [15826405](https://pubmed.ncbi.nlm.nih.gov/15826405/)].
25. Khademi M, Talebian S, Azadi M, Hoshyar S. The effectiveness of schema therapy on resilience in women with breast cancer. *New achievements in humanities studies*. 2019;**2**(18):116-24.
26. Amiri Z, Ghasemi M, Ghorbani S, Abachi M. The effectiveness of Jeffrey Young schema therapy on reducing rumination and depression in cancer patients. *3rd International Conference on Recent Innovations in Psychology, Counseling and Behavioral Sciences*. Tehran. 2016.
27. Moradhaseli M, Yarmohamadi Vassel M. [The Effect of Schema Therapy on Resilience, Feeling Lonely and Emotional Independence of Orphan Children]. *Clin Psychol Pers*. 2020;**15**(1):17-25. Persian. doi: [10.22070/cpap.2017.15.1.17](https://doi.org/10.22070/cpap.2017.15.1.17).
28. Rahimghaee F, Hatamipour K, Ashoori J. The Effect of Group Schema Therapy on Decrease Symptoms of Depression and Increase Quality of life among Nurses. *J Nurs Educ*. 2017;**6**(3):17-23. doi: [10.21859/jne-06033](https://doi.org/10.21859/jne-06033).
29. Hyphantis T, Papadimitriou I, Petrakis D, Fountzilias G, Repana D, Assimakopoulos K, et al. Psychiatric manifestations, personality traits and health-related quality of life in cancer of unknown primary site. *Psychooncology*. 2013;**22**(9):2009-15. doi: [10.1002/pon.3244](https://doi.org/10.1002/pon.3244). [PubMed: [23359412](https://pubmed.ncbi.nlm.nih.gov/23359412/)].
30. Gall JP, Borg WR. *Educational research: An introduction*. Boston: Pearson Education Inc; 2003.
31. Luthans F. Psychological capital: Implications for HRD, retrospective analysis, and future directions. *Hum Resour Dev Q*. 2012;**23**(1):1-8. doi: [10.1002/hrdq.21119](https://doi.org/10.1002/hrdq.21119).
32. Ghorbani Zadeh V, Alizadeh H, Khani S, Mohamadi A. [A Structural Model for the Effect of Psychological Capital on Organizational Citizenship Behavior]. *Res Sport Manag Mot Behav*. 2016;**5**(10):95-106. Persian.
33. Bifulco A, Mahon J, Kwon JH, Moran PM, Jacobs C. The Vulnerable Attachment Style Questionnaire (VASQ): an interview-based measure of attachment styles that predict depressive disorder. *Psychol Med*. 2003;**33**(6):1099-110. doi: [10.1017/S0033291703008237](https://doi.org/10.1017/S0033291703008237). [PubMed: [12946094](https://pubmed.ncbi.nlm.nih.gov/12946094/)].
34. Young JE, Klosko JS, Weishaar ME, Hamidpour H, Andouz A, translators. *Schema therapy: A practitioner's guide*. Tehran: Arjmand Pub; 2003. Persian.
35. Goli R, Hedayat S, Dehghan F, Hosseini-Shorabe M. [The Effect of Group Schema Therapy on Psychological Well-being and Aggression in University Students]. *Journal of Health and Care*. 2016;**18**(3):258-75. Persian.
36. Ansarihashidi M, farokhi H, rezayi jamolloi H, ebarhimi A, arabkhradmand J. [The Effect of Schema Therapy on Pain Acceptance, Pain Self-Efficacy, Pain Intensity, Emotion Regulation in Spinal Column Surgery Patients]. *Anesth Pain*. 2020;**11**(4):19-29. Persian.
37. Carmona-Halty M, Salanova M, Llorens S, Schaufeli WB. How Psychological Capital Mediates Between Study-Related Positive Emotions and Academic Performance. *J Happiness Stud*. 2018;**20**(2):605-17. doi: [10.1007/s10902-018-9963-5](https://doi.org/10.1007/s10902-018-9963-5).
38. Luthans F, Youssef-Morgan CM. Psychological Capital: An Evidence-Based Positive Approach. *Annu Rev Organ Psychol Organ Behav*. 2017;**4**(1):339-66. doi: [10.1146/annurev-orgpsych-032516-113324](https://doi.org/10.1146/annurev-orgpsych-032516-113324).
39. Videler AC, Rossi G, Schoevaars M, van der Feltz-Cornelis CM, van Alphen SP. Effects of schema group therapy in older outpatients: a proof of concept study. *Int Psychogeriatr*. 2014;**26**(10):1709-17. doi: [10.1017/S1041610214001264](https://doi.org/10.1017/S1041610214001264). [PubMed: [24990412](https://pubmed.ncbi.nlm.nih.gov/24990412/)].
40. Nosrati R, Momeni KH, Mazdeh M, Karami J. The Relationship between Psychological Capital and Acceptance of the Disease with Life Satisfaction in Patients with Multiple Sclerosis. *Journal of Health and Care*. 2018;**20**(2):114-22. doi: [10.29252/jhc.20.2.114](https://doi.org/10.29252/jhc.20.2.114).
41. Mami S, Safarnia A. [Effectiveness of Systemic-Constructivist Paternity Therapy on the Initial Maladaptive Schemas and Tendency to Extramarital Relationships in the Female Divorce Applicants]. *J Psychol Stud*. 2018;**14**(1):75-90. Persian. doi: [10.22051/psy.2018.16927.1474](https://doi.org/10.22051/psy.2018.16927.1474).
42. Masoodi S, Hatami HR, Modarres M, Banijamali S. [The mediating role of early maladaptive schemas in relationship between attachment styles and anxiety of death among cancer patients]. *Thoughts and Behavior in Clinical Psychology*. 2016;**11**(39):37-46. Persian.
43. Camara M, Calvete E. P-122 - Cognitive schemas predicting anxiety and depressive symptoms: the role of dysfunctional coping strategies. *Eur Psychiatry*. 2012;**27**:1. doi: [10.1016/S0924-9338\(12\)74289-X](https://doi.org/10.1016/S0924-9338(12)74289-X).
44. Dadoom H, Grecucci A, Giardini I, Ugolini E, Carmelita A, Panzeri M. Schema Therapy for Emotional Dysregulation: Theoretical Implication and Clinical Applications. *Front Psychol*. 2016;**7**:1987. doi: [10.3389/fpsyg.2016.01987](https://doi.org/10.3389/fpsyg.2016.01987). [PubMed: [28066304](https://pubmed.ncbi.nlm.nih.gov/28066304/)]. [PubMed Central: [PMC5177643](https://pubmed.ncbi.nlm.nih.gov/PMC5177643/)].