



Effectiveness of Mindfulness-Based Schema Therapy on Mental Pain and Experiential Avoidance in Patients with Cardiovascular Diseases

Mojtaba. Changi Ashtiani¹, Nabi. Fattahi^{2*}, Donya. Balali³, Seyyed Hossein. Alavi⁴, Milad. Mahmoudzadeh⁵

¹ M.A., Department of Clinical Psychology, Kish International Branch, Islamic Azad University, Kish Island, Iran

² Assistant Professor, Department of Psychology, Central Tehran Branch, Islamic Azad University, Tehran, Iran

³ M.A., Department of Clinical Psychology, Kish International Branch, Islamic Azad University, Kish Island, Iran

⁴ Ph.D., Department of Psychology, Bojnourd Branch, Islamic Azad University, Bojnourd, Iran

⁵ M.A., Department of Psychology, Baneh Branch, Islamic Azad University, Baneh, Iran

* Corresponding author email address: donyabalali72@yahoo.com

Article Info

Article type:

Original Research

How to cite this article:

Changi Ashtiani, M., Fattahi, N., Balali, D., Alavi, S. H., & Mahmoudzadeh, M. (2024). Effectiveness of Mindfulness-Based Schema Therapy on Mental Pain and Experiential Avoidance in Patients with Cardiovascular Diseases. *Journal of Assessment and Research in Applied Counseling*, 6(1), 90-96. <http://dx.doi.org/10.61838/kman.jarac.6.1.10>



© 2024 the authors. Published by KMAN Publication Inc. (KMANPUB), Ontario, Canada. This is an open access article under the terms of the Creative Commons Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) License.

ABSTRACT

Objective: Cardiovascular diseases are the primary cause of premature death worldwide, causing 18 million deaths annually. The present study aimed to investigate the effectiveness of mindfulness-based schema therapy on mental pain and experiential avoidance in patients with cardiovascular diseases.

Methods and Materials: The current study was a quasi-experimental pre-test, post-test design with a control group and a two-month follow-up period. The statistical population included patients visiting the Tehran Heart Center during March to May 2023. Thirty patients were randomly selected and assigned to experimental and control groups. The experimental group received mindfulness-based schema therapy in ten 90-minute sessions, once a week. The instruments used included the Orbach & Co (2003) Mental Pain questionnaire and the Bond & Co (2011) Experiential Avoidance questionnaire. Data were analyzed using repeated measures ANOVA with SPSS software version 26.

Findings: The results showed that mindfulness-based schema therapy has a significant effect on mental pain and experiential avoidance in patients with cardiovascular diseases ($p < 0.001$).

Conclusion: Based on the findings, it can be concluded that mindfulness-based schema therapy can be used as an effective intervention for reducing mental pain and experiential avoidance.

Keywords: *Experiential avoidance, Cardiovascular disease, Mental pain, Mindfulness-based schema therapy.*

1. Introduction

Cardiovascular diseases are the primary cause of premature death worldwide (Bafei et al., 2023), causing 18 million deaths annually (Georges et al., 2021). This means that cardiovascular diseases account for one-

third of annual global mortality (Okoth et al., 2020). Due to advances in early diagnosis, treatment, and supportive care, the mortality rate from cardiovascular diseases has decreased in recent years (Liu et al., 2019). However, the Global Burden of Disease Study estimates that nearly 523 million people worldwide are affected by cardiovascular

diseases (Hu et al., 2023). One of the experiences these patients may encounter is mental pain. Mental pain is the emergence of a negative sense of self resulting from trauma and loss. Researchers have described this form of psychological suffering as "self-disruption," which includes loss of control, loss of self, and a sense of injury (Fertuck et al., 2016). Given the prevalence of mental pain, it is not surprising that it has been proposed as a transdiagnostic construct that should be assessed through patient-reported outcome measures (Landi et al., 2023; Meerwijk et al., 2019). Mental pain, also known as "psychache," is defined as an acute state of severe psychological pain associated with negative cognitive and emotional aspects of the self (Landi et al., 2023). Conversely, the tolerance of mental pain, or the extent to which an individual can endure and manage aversive states of psychological pain, has been considered a protective mental health factor associated with adaptive responses to psychological pain during stressful periods (Meerwijk et al., 2019).

In finding ways to regulate emotional distress, an individual might engage in behaviors or strategies to suppress, avoid, or escape these feelings. Experiential avoidance refers to an individual's inability or unwillingness to remain in contact with their inner distress (Emerson et al., 2019). As a short-term self-regulation strategy, experiential avoidance may help individuals manage worrisome physical sensations, thoughts, and emotions related to specific negative conditions (Zhang & Wang, 2022). This term refers to the desire to suppress unwanted emotions, thoughts, and sensations and relates to an individual's reaction to their feelings, not what they feel per se. Experiential avoidance is characterized by two composite aspects: (a) the unwillingness to remain in contact with private and aversive experiences, and (b) those actions aimed at changing the aversive experience(s) and/or the events that precipitate them (Nielsen et al., 2016). Experiential avoidance is considered a transdiagnostic process that contributes to the development and maintenance of anxiety across a wide range of clinical manifestations (Hayes-Skelton & Eustis, 2020).

One of the treatments in this field is mindfulness-based schema therapy. Schema therapy systematically integrates a range of techniques from cognitive-behavioral therapy, psychodynamic therapy, attachment theory, mindfulness, and Gestalt therapy (McCormick, 2023). Schema therapy helps the patient in the therapeutic process to question schemas and create a healthy voice in their mind, thereby strengthening their healthy mindset (Spivak & Konichezky,

2022). Furthermore, integrating schema therapy elements with contemporary positive psychology practices such as acceptance, mindful awareness, and self-compassion offers promising clinical potential (Yakin et al., 2019). Research has shown that schema therapy, along with mindfulness, has been effective in improving maladaptive schemas and symptoms of psychological pathology in patients (Gojani et al., 2017). A review of the literature indicates that mindfulness-based interventions have been promising in reducing pain and psychological symptoms under various conditions (Pardos-Gascón et al., 2021; Veehof et al., 2016). Additionally, mindfulness-based interventions are associated with a reduction in experiential avoidance, which mediates various psychological problems (Bamelis et al., 2014). Given the aforementioned points, the current study aims to investigate the effectiveness of mindfulness-based schema therapy on mental pain and experiential avoidance in patients with cardiovascular diseases.

2. Methods and Materials

2.1. Study Design and Participants

The present study was quasi-experimental, utilizing a pre-test, post-test, and follow-up design with a control group. The population of this research consisted of patients visiting the Tehran Heart Center during March to May 2023, diagnosed with cardiovascular disease by a specialist. The sample included 30 individuals randomly selected and allocated into two groups of 15 each for the experimental and control groups. The experimental group then received mindfulness-based schema therapy over 10 sessions, each lasting 90 minutes, on a weekly basis, while no intervention was conducted for the control group. The inclusion criteria for patients to participate in the research were diagnosis of cardiovascular disease by a specialist, consent and willingness to participate in the research, ability to attend sessions and cooperate in completing tasks, a minimum education level of cycle, and age range between 25 to 55 years. Exclusion criteria included lack of cooperation in therapy sessions, incomplete questionnaire responses, unwillingness to continue participation in the research, concurrent participation in other psychotherapeutic interventions, and absence from more than three sessions.

Ethical considerations of the current study included: obtaining written consent from participants before starting. Participants were informed about the study's subject and methodology before commencement. Participants' private and personal information was protected. Results were

interpreted for participants upon request. Necessary guidance for follow-up was provided in case of any observed disorders. Participation in the research did not impose any financial burden on the participants. This research did not conflict with the religious and cultural norms of the subjects and community.

2.2. *Measures*

2.2.1. *Mental Pain*

This scale, developed by Orbach et al. in 2003, consists of 44 items and 9 factors including immutability, loss of control, worthlessness, emotional turmoil, numbness, alienation, confusion, social withdrawal, and emptiness. Respondents answer on a 5-point Likert scale. Karami et al. (2018) obtained a Cronbach's alpha coefficient of 0.96 for this questionnaire, indicating acceptable reliability. Toosani et al. (2021) reported Cronbach's alpha coefficient for this scale in the range of 0.81 to 0.92 (Ertezaee et al., 2023).

2.2.2. *Experiential Avoidance*

This questionnaire measures acceptance, experiential avoidance, and psychological inflexibility. The latest

version of this tool consists of 10 questions on a 7-point Likert scale, developed by Bond et al. in 2011. The score range from this questionnaire is between 10-70, with higher scores indicating a greater tendency toward experiential avoidance. The psychometric adequacy of the Persian version of this questionnaire was examined and confirmed by Abbasi et al. The validity of the questionnaire was assessed by Abbasi et al. (2012) through its correlation with the Beck Depression Inventory-II and the Beck Anxiety Inventory in a sample of 192 university students from Tehran and Tehran University of Medical Sciences, reporting correlations of -0.59 and -0.44, respectively. For assessing the discriminant validity of the questionnaire, the experiential avoidance scores of a psychometric sample group (25 ill women and 25 healthy women) were compared, showing a significant difference between the two groups in terms of experiential avoidance levels (Abasi et al., 2012).

2.3. *Intervention*

2.3.1. *Mindfulness-Based Schema Therapy*

The schema therapy training sessions based on mindfulness were consisting of 10 sessions, each 90 minutes long, held once a week (Gojani et al., 2017).

Table 1

Summary of Mindfulness-Based Schema Therapy Sessions

Session	Content
1	Introduction of participants and group rules, explanation of betrayal and emotional issues resulting from it, discussing participants' previous mindfulness exercises if any, the logic of mindfulness, and mindfulness exercise with raisin
2	Discussion on schemas and mindsets, the relationship between schema activation and spouse's betrayal, body scan mindfulness exercise
3	5-minute body scan meditation, explaining the logic of mindfulness and schema therapy, and how mindfulness exercises affect automatic reactions caused by schema and mindset activation, mindfulness practice on daily matters, mindfulness practice on the surrounding environment
4	Feedback from participants about their mindfulness level regarding their schemas in the past week, three-minute breathing space exercise, mindful attention to painful memories
5	Feedback from participants about their mindfulness level regarding their schemas in the past week, three-minute breathing space exercise, explaining strategies for confronting schemas, filling out a schema confrontation questionnaire by members, mindfulness practice on schema, familiarization exercise with schema
6	Feedback from participants about their mindfulness level regarding their schemas in the past week, three-minute breathing space exercise, teaching members to react to situations from the perspective of a healthy adult and happy child, three-minute mindful attention to schema, practice of mindful acceptance of self and others
7	Feedback from participants about their mindfulness level regarding their schemas in the past week, three-minute breathing space exercise, schema-reality or fantasy: considering schemas as a bunch of thoughts not equivalent to reality, practice of letting go of schemas
8	Feedback from participants about their mindfulness level regarding their schemas in the past week, three-minute breathing space exercise, self-care education through a healthy adult and happy child, cognitive challenge with schemas
9	Feedback from participants about their mindfulness level regarding their schemas in the past week, three-minute breathing space exercise, continuation of mindful orientation, practice of a healthy adult integrating mindfulness into daily life
10	Review of participants' mindfulness level towards schemas and mindsets in the past week, continuous identification and monitoring of schemas and mindsets, mindful practice with a healthy adult overseeing individual's vulnerability, responds kindly, and hopeful towards the future

2.4. *Data analysis*

In the descriptive analysis, statistical indices for each of the research variables were calculated. In the inferential statistics section, repeated measures ANOVA and SPSS-26 software were utilized.

3. **Findings and Results**

The mean and standard deviation of age for the control group participants were 39.26 and 7.3, respectively, and for the experimental group, 38.01 and 6.49. Regarding marital status, 25 individuals (83.33%) were married, and 5 individuals (16.66%) were single. In terms of education, 16 individuals (53.33%) had a diploma, 11 individuals (36.66%) had a bachelor's degree, 2 individuals (6.66%) had a master's degree, and 1 individual (3.3%) had a doctoral degree, comprising the sample of this study.

Table 2

Mean (Standard Deviation) of Research Variables in Experimental and Control Groups

Variable	Group	Pre-test	Post-test	Follow-up
		Mean (SD)	Mean (SD)	Mean (SD)
Mental Pain	Experimental	160.73 (16.12)	101.40 (11.83)	96.86 (11.14)
	Control	165.06 (13.57)	166.53 (13.39)	166.86 (13.95)
Experiential Avoidance	Experimental	50.46 (5.30)	26.86 (8.33)	29.13 (11.07)
	Control	50.13 (8.05)	49.40 (8.69)	49.86 (8.72)

According to [Table 2](#), the mean scores of the experimental group in the variables of mental pain and experiential avoidance showed a greater reduction in the post-test compared to the control group. This change remained more pronounced at the follow-up stage. To determine effectiveness, the basic assumptions of the covariance test were first examined. The normality of the distribution of scores for the variables was assessed with the Shapiro-Wilk test, and the results were not significant, leading to the conclusion that the distribution of scores for the dependent variables is normal. The homogeneity of variance errors was examined using Levene's test. The

results of Levene's test indicated that variance errors for mental pain ($P=0.285$, $F=7.375$) and experiential avoidance ($P=0.296$, $F=1.132$) were not significant at the 0.05 level, suggesting the groups are comparable. The results of the Box's M test for examining the homogeneity of variance-covariance were statistically insignificant, indicating the assumption of homogeneity of the covariance matrix was met. Also, the level of significant interaction between groups and pre-test for mental pain and experiential avoidance was not significant ($P>0.05$), confirming the assumption of homogeneity of regression slopes is satisfied and necessary. Conditions for conducting the covariance analysis were met.

Table 3

Results of Multivariate Statistical Test in Multivariate Analysis of Variance

Test	Value	F	df Effect	df Error	Significance Level
Pillai's Trace	0.857	80.952	2.000	27.000	≤ 0.001
Wilks' Lambda	0.143	80.952	2.000	27.000	≤ 0.001
Hotelling's Trace	5.996	80.952	2.000	27.000	≤ 0.001
Roy's Largest Root	5.996	80.952	2.000	27.000	≤ 0.001

According to [Table 3](#), the significance levels of all four multivariate statistics including Pillai's trace, Wilks' lambda, Hotelling's trace, and the largest root were significant at the 0.001 level ($P<0.01$), indicating that the schema therapy

intervention had a significant overall effect on the dependent variables. Subsequently, the results of the covariance analysis for examining the dependent variables are presented.

Table 4

Results of Repeated Measures ANOVA for Research Variables

Variable	Source of Variation	Sum of Squares	df	Mean Square	F	p	Eta Squared
Mental Pain	Time	400.08	1.13	296.70	261.46	≤ 0.001	0.90
	Time*Group	277.06	2.26	205.46	181.07	≤ 0.001	0.86
	Group	260.10	2	260.10	4.93	0.035	0.15
Experiential Avoidance	Time	119.46	1.13	92.71	148.15	≤ 0.001	0.84
	Time*Group	93.95	2.26	72.91	116.52	≤ 0.001	0.80
	Group	146.94	2	146.94	41.16	≤ 0.001	0.59

Based on the data from Table 4, it is observed that after adjusting for pre-test scores, there is a significant effect among the group subjects for the variables of mental pain

and experiential avoidance. Hence, it can be concluded that schema therapy has an effect on the variables of mental pain and experiential avoidance.

Table 5

Differences in Pairwise Comparisons of Pre-test, Post-test, and Follow-up Stages

Variable	Stage 1	Stage 2	Mean Difference of Stages	Standard Deviation	P-value
Mental Pain	Pre-test	Post-test	28.93	1.611	< 0.001
	Pre-test	Follow-up	31.03	1.167	< 0.001
Experiential Avoidance	Pre-test	Post-test	12.16	0.897	< 0.001
	Pre-test	Follow-up	10.80	1.182	< 0.001

As shown in Table 5, there is significance between the mean scores of pre-test, post-test, and follow-up for the variables of mental pain and experiential avoidance. This means that schema therapy significantly changed the post-test and follow-up scores compared to the pre-test stage. Additionally, this change continued during the follow-up period.

4. Discussion and Conclusion

The aim of the present study was to evaluate the effectiveness of mindfulness-based schema therapy on mental pain and experiential avoidance in patients with cardiovascular diseases. The results indicated that mindfulness-based schema therapy was effective in reducing mental pain and experiential avoidance in patients with cardiovascular diseases. These findings align with the results from the prior studies (Bahrambagi et al., 2023; Gu et al., 2023).

In explaining these findings, it can be stated that patients with cardiovascular diseases are likely to activate maladaptive schemas under the influence of emotional states and negative mental processing. The activation of maladaptive schemas in response to new stimuli affects the patient's encoding, processing, and perception of themselves, leading to the arousal of disturbing emotions, avoidant responses, and self-harming behaviors (Gu et al.,

2023). Additionally, it impacts the individual's ability to adapt to the disease, taking control over the patient's functioning and dominating them, which can affect their mental and physical health. Schema therapy, equipped with cognitive, experiential, and behavioral strategies, traces the footprints of schemas with a focus on interpersonal relationships from childhood to the present, confronting patients empathetically with the reasons and necessity for change. By breaking behavioral patterns, it assists patients in designing and implementing behavioral tasks to replace maladaptive coping responses with adaptive behavioral patterns, overcoming avoidance and anxiety in social situations, and preparing for a healthy and successful social presence to ensure overall well-being. Schema therapy helps patients replace inefficient coping responses with adaptive behavioral patterns through appropriate experiential and behavioral tasks. It also aids patients in identifying their maladaptive schemas, such as social isolation or emotional deprivation, addressing their needs within therapeutic boundaries, and placing them on a path to recovery and health through successful treatment stages.

The results demonstrated that mindfulness-based schema therapy was effective in reducing mental pain in patients with cardiovascular diseases, consistent with the previous research (Spivak & Konichezky, 2022; Yousefzadeh et al., 2020). The results suggest that organizing information in the

mind categorizes realities into correct and incorrect. The schemas and mindsets of individuals with cardiovascular diseases, due to experiencing negative emotions, lead to the catastrophic portrayal of pain, focusing on pain, and ultimately increasing mental pain. Clearly, the therapeutic approach can lead to changes in patients, who can be effective in reducing mental pain through muscle relaxation techniques, breaking the cycle of severe pain-long rest, and recommendations for muscle activities. This treatment method helps manage conditions that may arise from negative emotions associated with the disease, emphasizing that these are not fixed and permanent aspects of personality, enabling individuals to respond to events with deliberation and thought rather than involuntary reactions. This increases the ability to observe states such as anxiety stemming from the disease, allowing the individual to manage current conditions with understanding, presence in the now, accompanying emotions, and without judgment by others, experiencing less stress and pain (Yousefzadeh et al., 2020).

Finally, the results indicated that mindfulness-based schema therapy was effective in addressing experiential avoidance in patients with cardiovascular diseases. While no findings were discovered regarding the effectiveness of mindfulness-based schema therapy on the variable of experiential avoidance, the results showed that avoiding increases the power of thoughts and emotions that are being avoided; therefore, affecting the propensity for experiential avoidance in these patients. In this treatment, through non-judgmental attention to inner experience, the activation of schemas and mindsets allows for the creation of new methods for responding to experiential avoidance. Mindful exposure instructions involve allowing feelings to emerge and focusing on the bodily responses they elicit without anticipating anything or undertaking any strange actions, leading to transformation in the long term by letting feelings flow. Schema-based beliefs trigger highly painful emotions so anxiety-inducing that individuals suppress or avoid them as soon as this pain activates; therefore, using techniques creates a situation where, instead of focusing on negative thoughts and feelings and avoidant behaviors associated with the disease, patients pay attention to important and valuable aspects of their lives and other abilities they possess (Spivak & Konichezky, 2022).

5. Limitations & Suggestions

In summary, the results showed that mindfulness-based schema therapy was effective in reducing mental pain and

experiential avoidance in patients with cardiovascular diseases. It is also essential to note that the current study had its limitations, and future research overcoming these limitations and revisiting the measurements of the study variables could further generalize the findings to a more reliable extent for Iranian samples. Additionally, the limited sample size could constrain the generalizability of the findings. Future research, by overcoming these limitations, can approach a broader generalization of the results.

Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

Authors' Contributions

All authors equally contributed in this article.

References

- Abasi, E., Fti, L., Molodi, R., & Zarabi, H. (2012). Psychometric properties of Persian Version of Acceptance and Action Questionnaire –II. *Psychological Methods and Models*, 3(Vol.2/No.10/Winter 2013), 65-80. https://jpm.m.marvdasht.iau.ir/article_61_21af488ece7d0446040f5daca6e18c08.pdf
- Bafei, S. E. C., Zhao, X., Chen, C., Sun, J., Zhuang, Q., Lu, X., Chen, Y., Gu, X., Liu, F., Mu, J., Wei, L., Wei, P., Yin, Y., Xie, H., Yang, S., & Shen, C. (2023). Correction: Interactive effect of increased high sensitive C-reactive protein and dyslipidemia on cardiovascular diseases: a 12-year

- prospective cohort study. *Lipids in Health and Disease*, 22(1), 113. <https://doi.org/10.1186/s12944-023-01894-0>
- Bahrambagi, Z., Lotfi Kashani, F., & Vaziri, S. (2023). Effectiveness of mindfulness-based therapy on chronic stress and disease perception in heart patients [Semi-pilot]. *Medical Sciences Journal of Islamic Azad University*, 33(1), 70-79. <https://doi.org/10.52547/iau.33.1.70>
- Bamelis, L. L. M., Evers, S. M. A. A., Spinhoven, P., & Arntz, A. (2014). Results of a Multicenter Randomized Controlled Trial of the Clinical Effectiveness of Schema Therapy for Personality Disorders. *American Journal of Psychiatry*, 171(3), 305-322. <https://doi.org/10.1176/appi.ajp.2013.12040518>
- Emerson, L.-M., Ogielka, C., & Rowse, G. (2019). The role of experiential avoidance and parental control in the association between parent and child anxiety. *Frontiers in psychology*, 10, 262. <https://www.frontiersin.org/articles/10.3389/fpsyg.2019.00262/full>
- Ertezaee, B., Neissi, A., Hamid, N., & Davoudi, I. (2023). The effectiveness of emotion focused therapy on mental pain, experiential avoidance, and forgiveness in women with depression, who experienced a romantic relationship breakup [Research]. *Shenakht Journal of Psychology and Psychiatry*, 9(6), 64-77. <https://doi.org/10.32598/shenakht.9.6.64>
- Fertuck, E. A., Karan, E., & Stanley, B. (2016). The specificity of mental pain in borderline personality disorder compared to depressive disorders and healthy controls. *Borderline personality disorder and emotion dysregulation*, 3(1), 2. <https://doi.org/10.1186/s40479-016-0036-2>
- Georges, A., Yang, M.-L., Berrandou, T.-E., Bakker, M. K., Dikilitas, O., Kiando, S. R., Ma, L., Satterfield, B. A., Sengupta, S., Yu, M., Deleuze, J.-F., Dupré, D., Hunker, K. L., Kyrkachenko, S., Liu, L., Sayoud-Sadeg, I., Amar, L., Brummett, C. M., Coleman, D. M., . . . Investigators, A. (2021). Genetic investigation of fibromuscular dysplasia identifies risk loci and shared genetics with common cardiovascular diseases. *Nature Communications*, 12(1), 6031. <https://doi.org/10.1038/s41467-021-26174-2>
- Gojani, P. J., Masjedi, M., Khaleghipour, S., & Behzadi, E. (2017). Effects of the Schema Therapy and Mindfulness on the Maladaptive Schemas Hold by the Psoriasis Patients with the Psychopathology Symptoms. *Advanced Biomedical Research*, 6(1). https://journals.lww.com/adbm/fulltext/2017/06000/effects_of_the_schema_therapy_and_mindfulness_on.4.aspx
- Gu, J.-J., Tong, X.-S., Meng, S.-S., Xu, S.-H., & Huang, J.-Y. (2023). Effect of mindfulness-based stress reduction in patients with acute myocardial infarction after successful primary percutaneous coronary intervention: a retrospective study. *BMC Cardiovascular Disorders*, 23(1), 315. <https://doi.org/10.1186/s12872-023-03346-0>
- Hayes-Skelton, S. A., & Eustis, E. H. (2020). Experiential avoidance. In *Clinical handbook of fear and anxiety: Maintenance processes and treatment mechanisms*. (pp. 115-131). American Psychological Association. <https://doi.org/10.1037/0000150-007>
- Hu, S., Lin, Z., Hu, M.-J., Tan, J.-S., Guo, T.-T., Huang, X., & Hua, L. (2023). Causal relationships of circulating amino acids with cardiovascular disease: a trans-ancestry Mendelian randomization analysis. *Journal of translational medicine*, 21(1), 699. <https://doi.org/10.1186/s12967-023-04580-y>
- Landi, G., Grossman-Giron, A., Bitan, D. T., Mikulincer, M., Grandi, S., & Tossani, E. (2023). Mental Pain, Psychological Distress, and Suicidal Ideation During the COVID-19 Emergency: the Moderating Role of Tolerance for Mental Pain. *International journal of mental health and addiction*, 21(2), 1120-1131. <https://doi.org/10.1007/s11469-021-00646-4>
- Liu, D., Ma, Z., Yang, J., Zhao, M., Ao, H., Zheng, X., Wen, Q., Yang, Y., You, J., & Qiao, S. (2019). Prevalence and prognosis significance of cardiovascular disease in cancer patients: a population-based study. *Aging (Albany NY)*, 11(18), 7948. <https://doi.org/10.18632/aging.102301>
- McCormick, I. (2023). An introduction to schema coaching techniques, part 1: The schema octagon. *The Coaching Psychologist*, 19(1), 27. https://www.researchgate.net/profile/Iain-McCormick/publication/371134245_An_introduction_to_schema_coaching_techniques_part_1_The_schema_octagon/link/s/647508e1a25e543829dc1f92/An-introduction-to-schema-coaching-techniques-part-1-The-schema-octagon.pdf
- Meerwijk, E. L., Mikulincer, M., & Weiss, S. J. (2019). Psychometric evaluation of the Tolerance for Mental Pain Scale in United States adults. *Psychiatry research*, 273, 746-752. <https://doi.org/10.1016/j.psychres.2019.01.101>
- Nielsen, E., Sayal, K., & Townsend, E. (2016). Exploring the Relationship between Experiential Avoidance, Coping Functions and the Recency and Frequency of Self-Harm. *PLoS One*, 11(7), e0159854. <https://doi.org/10.1371/journal.pone.0159854>
- Okoth, K., Chandan, J. S., Marshall, T., Thangaratinam, S., Thomas, G. N., Nirantharakumar, K., & Adderley, N. J. (2020). Association between the reproductive health of young women and cardiovascular disease in later life: umbrella review. *bmj*, 371, m3502. <https://doi.org/10.1136/bmj.m3502>
- Pardos-Gascón, E. M., Narambuena, L., Leal-Costa, C., Ramos-Morcillo, A. J., Ruzafa-Martínez, M., & van-der Hofstadt Román, C. J. (2021). Effects of Mindfulness-Based Cognitive Therapy for Chronic Pain: A Multicenter Study. *International journal of environmental research and public health*, 18(13), 6951. <https://doi.org/10.3390/ijerph18136951>
- Spivak, O., & Konichezky, A. (2022). Schema focused and mentalization based therapy – An integrative proposal. *European Journal of Psychotherapy & Counselling*, 24(3), 357-372. <https://doi.org/10.1080/13642537.2022.2072928>
- Veehof, M. M., Trompetter, H. R., Bohlmeijer, E. T., & Schreurs, K. M. G. (2016). Acceptance- and mindfulness-based interventions for the treatment of chronic pain: a meta-analytic review. *Cognitive behaviour therapy*, 45(1), 5-31. <https://doi.org/10.1080/16506073.2015.1098724>
- Yakın, D., Gençöz, T., Steenbergen, L., & Arntz, A. (2019). An integrative perspective on the interplay between early maladaptive schemas and mental health: The role of self-compassion and emotion regulation. *Journal of Clinical Psychology*, 75(6), 1098-1113. <https://doi.org/10.1002/jclp.22755>
- Yousefzadeh, M., Hashemi, S. M., Talebi, H., Neshat-Doost, H., Taheri, M., & Momenzadeh, S. (2020). Compare the Effectiveness of Cognitive- Behavior Therapy and Schema Therapy on reducing the cognitive error of pain catastrophizing and increase of pain self- efficacy in Tehranian Patients with Chronic Low Back Pain. https://www.researchgate.net/publication/344187563_Compare_the_Effectiveness_of_Cognitive-Behavior_Therapy_and_Schema_Therapy_on_reducing_the_cognitive_error_of_pain_catastrophizing_and_increase_of_pain_self-efficacy_in_Tehranian_Patients_with_Chron
- Zhang, J., & Wang, E. (2022). Indulging in Smartphones in Times of Stress: A Moderated Mediation Model of Experiential Avoidance and Trait Mindfulness. *Behavioral Sciences*, 12(12), 485. <https://doi.org/10.3390/bs12120485>