











**Table 4.** Results of one-way analysis of covariance in Manuka text on mean posttest scores of psychological well-being and optimism in the experimental and control groups with pretest control

Variable	SS	df	Mean of squares	F	P	Eta square	Statistical power
Optimistic	270.43	1	270.43	43.81	0.0001	0.54	1.00
Positive relationship with others	49.90	1	49.90	59.06	0.0001	0.68	1.00
Independence	43.96	1	43.96	82.45	0.0001	0.75	1.00
Environmental mastery	52.76	1	52.76	65.13	0.0001	0.70	1.00
Personal growth	64.93	1	64.93	124.25	0.0001	0.82	1.00
Purposefulness in life	73.48	1	73.48	120.41	0.0001	0.81	1.00
Self-acceptance	15.31	1	15.31	29.31	0.0001	0.52	1.00
Psychological well-being	1760.34	1	1760.34	723.26	0.0001	0.96	1.00

SS: Sum of squares; df: degrees of freedom

Learning techniques that improve cognitive processes along with increasing tolerance, paying attention to the value system, and choosing the right approach to the problem that is considered in ACT, can, in a suitable process, increase and improve psychological optimism and well-being.

Furthermore, clarification of the values and commitment to acting in the direction of these values allows infertile women to act in ways that can further reduce individual anxiety (Bricker, Bush, Zbikowski, Mercer, & Heffner, 2014). In ACT, mindfulness, acceptance, and cognitive diffusion skills are used to increase psychological flexibility. Psychological flexibility is the increase in the ability of clients to relate to their present experience based on what is possible at the present moment. Evidently, in this way, they choose to act in the forms that are consistent with the chosen values (Ghasemi, Dehghan, Farnia, Tatari, & Alikhani, 2016).

In ACT, increased psychological flexibility is a mediator in improving psychological problems. Depressed patients, for example, usually seek to bring about depression, leading to increased rumination and criticism of their experiences. This therapy method is reinforced through mindfulness exercises, self-observation and body posture, and the modification of one's relationship with one's thoughts with the intention to increase the acceptance of thoughts, beliefs, feelings, and effort for sensory and physical perceptions (Galhardo, Cunha, Pinto-Gouveia, & Matos, 2013). It also appears that being aware of the present moment without using the lens of

judgment will help infertile women to better communicate their infertility and infertility history, which will lead to improved psychological optimism and well-being. This will ultimately improve pregnancy (Cunha, Galhardo, & Pinto-Gouveia, 2016).

Therefore, ACT will help individuals develop the skills needed to solve problems through cognitive-behavioral problem solving, instantaneous awareness of emotions (mindfulness), and unconditional acceptance of the problem (disorder). This treatment method decreases the amount of infertility stress that leads to physiological stress, pain, and physical discomfort by increasing the level of acceptance and reducing intellectual inhibition. Through the use of ACT, increased cognitive deficits, and informed acceptance helps infertile women experience new interactions and reduces negative thoughts, ultimately reducing the negative impact of infertile women. Infertile women learn to embrace situations and thoughts that they previously avoided. Transparent communication values and commitment to acting in harmony with these values allow infertile women to act in a way that leads them to life satisfaction, communication, management of their individual life, reduced physiological anxiety, and improved psychological well-being.

ACT is based on a cognitive-behavioral and therapeutic approach that not only alleviates the negative emotional consequences of diseases and disorders, but also increases the level of psychological well-being of infertile women. In short, it seems

that in this program, people with infertility problems learn to substitute their attempt to dedicate their thoughts and emotions with experiencing them, relating to their set of goals and value systems, and keeping them in touch and adjusting their lives accordingly. As noted above, behavioral commitment exercises, fault-tolerance and acceptance techniques, and detailed discussions of values and goals all lead to increased optimism and improved psychological well-being in infertile women. Concerning the application of this program in future treatment and research, it is recommended that practitioners dealing with infertile women receive ACT and use its techniques of intellectual acceptance, cognitive impairment, and the pursuit of value-driven behaviors to reduce their suffering and improve their optimism and psychological well-being during pregnancy. Moreover, the issue of long-term follow-up and the stability of treatment and its effects on infertile women, as well as the comparison of this intervention with other psychological approaches in different groups of people with infertility should be considered in future studies. Furthermore, psychological interventions enhance psychological optimism and well-being during pregnancy, especially for those with infertility, which may be a new perspective in therapeutic protocols in this field.

## Conclusion

It can be concluded that ACT, which includes intellectual acceptance, cognitive impairment, and pursuit of value-driven behaviors, can reduce the suffering of infertile women and improve psychological optimism and well-being among them. Thus, it can be used during pregnancy.

## Conflict of Interests

Authors have no conflict of interests.

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## References

- Bakhshayesh, A. R., Kazeraninejad, M., Dehghan, M. M., & Raghebian, M. (2012). A comparison of general health and coping strategies in fertile and infertile women in Yazd. *Iran J Reprod.Med*, 10(6), 601-606. Retrieved from PM:25246933
- Breitbart, W., Rosenfeld, B., Pessin, H., Applebaum, A., Kulikowski, J., & Lichtenthal, W. G. (2015). Meaning-centered group psychotherapy: an effective intervention for improving psychological well-being in patients with advanced cancer. *J Clin Oncol.*, 33(7), 749-754. doi:JCO.2014.57.2198 [pii];10.1200/JCO.2014.57.2198 [doi]. Retrieved from PM:25646186
- Bricker, J. B., Bush, T., Zbikowski, S. M., Mercer, L. D., & Heffner, J. L. (2014). Randomized trial of telephone-delivered acceptance and commitment therapy versus cognitive behavioral therapy for smoking cessation: a pilot study. *Nicotine.Tob.Res*, 16(11), 1446-1454. doi:ntu102 [pii];10.1093/ntr/ntu102 [doi]. Retrieved from PM:24935757
- Crosby, J. M., & Twohig, M. P. (2016). Acceptance and Commitment Therapy for Problematic Internet Pornography Use: A Randomized Trial. *Behav Ther*, 47(3), 355-366. doi:S0005-7894(16)00017-4 [pii];10.1016/j.beth.2016.02.001 [doi]. Retrieved from PM:27157029
- Cunha, M., Galhardo, A., & Pinto-Gouveia, J. (2016). Experiential avoidance, self-compassion, self-judgment and coping styles in infertility. *Sex Reprod.Healthc.*, 10, 41-47. doi:S1877-5756(16)30003-9 [pii];10.1016/j.srhc.2016.04.001 [doi]. Retrieved from PM:27938872
- Davies, C. D., Niles, A. N., Pittig, A., Arch, J. J., & Craske, M. G. (2015). Physiological and behavioral indices of emotion dysregulation as predictors of outcome from cognitive behavioral therapy and acceptance and commitment therapy for anxiety. *J Behav Ther Exp.Psychiatry*, 46, 35-43. doi:S0005-7916(14)00072-X [pii];10.1016/j.jbtep.2014.08.002 [doi]. Retrieved from PM:25199454
- Di Spiezio, S. A., Di, Carlo, C., Minozzi, S., Spinelli, M., Pistotti, V., Alviggi, C. et al. (2016). Efficacy of hysteroscopy in improving reproductive outcomes of infertile couples: a systematic review and meta-analysis. *Hum.Reprod.Update.*, 22(4), 479-496. doi:dmw008 [pii];10.1093/humupd/dmw008 [doi]. Retrieved from PM:27008893
- Feldman, D. B., & Kubota, M. (2015). Hope, self-efficacy, optimism, and academic achievement: Distinguishing constructs and levels of specificity in predicting college grade-point average. *Learn. Individ. Differ.*, 37, 210-216.

- Fergus, T. A. (2015). I Really Believe I Suffer From a Health Problem: Examining an Association Between Cognitive Fusion and Healthy Anxiety. *J Clin Psychol*, 71(9), 920-934. doi:10.1002/jclp.22194 [doi]. Retrieved from PM:25994488
- Frederiksen, Y., O'Toole, M. S., Mehlsen, M. Y., Hauge, B., Elbaek, H. O., Zachariae, R. et al. (2017). The effect of expressive writing intervention for infertile couples: a randomized controlled trial. *Hum.Reprod.*, 32(2), 391-402. doi:dew320 [pii];10.1093/humrep/dew320 [doi]. Retrieved from PM:28007790
- Galhardo, A., Cunha, M., Pinto-Gouveia, J., & Matos, M. (2013). The mediator role of emotion regulation processes on infertility-related stress. *J Clin Psychol Med Settings.*, 20(4), 497-507. doi:10.1007/s10880-013-9370-3 [doi]. Retrieved from PM:23821009
- Ghasemi, F., Dehghan, F., Farnia, V., Tatari, F., & Alikhani, M. (2016). Effectiveness of Acceptance and Commitment Therapy on Life Expectancy of Female Cancer Patients at Tehran's Dehshpour Institute in 2015. *Asian Pac.J Cancer Prev.*, 17(8), 4113-4116. Retrieved from PM:27644670
- Gillanders, D. T., Sinclair, A. K., MacLean, M., & Jardine, K. (2015). Illness cognitions, cognitive fusion, avoidance and self-compassion as predictors of distress and quality of life in a heterogeneous sample of adults, after cancer. *J. Contextual. Behav. Sci.*, 4(4), 300-311.
- Graham, C. D., Gouick, J., Krahe, C., & Gillanders, D. (2016). A systematic review of the use of Acceptance and Commitment Therapy (ACT) in chronic disease and long-term conditions. *Clin Psychol Rev.*, 46, 46-58. doi:S0272-7358(15)30112-4 [pii];10.1016/j.cpr.2016.04.009 [doi]. Retrieved from PM:27176925
- Hanna, E., Ward, L. M., Seabrook, R. C., Jerald, M., Reed, L., Giaccardi, S. et al. (2017). Contributions of Social Comparison and Self-Objectification in Mediating Associations Between Facebook Use and Emergent Adults' Psychological Well-Being. *Cyberpsychol.Behav Soc.Netw.*, 20(3), 172-179. doi:10.1089/cyber.2016.0247 [doi]. Retrieved from PM:28263683
- Hughes, L. S., Clark, J., Colclough, J. A., Dale, E., & McMillan, D. (2017). Acceptance and Commitment Therapy (ACT) for Chronic Pain: A Systematic Review and Meta-Analyses. *Clin J Pain*, 33(6), 552-568. doi:10.1097/AJP.0000000000000425 [doi]. Retrieved from PM:27479642
- Jamshidian QalehShahi, P., Aghaei, A., & Golparvar, M. (2017). Comparing the Effect of Iranian Positive Therapy and Acceptance -Commitment Therapy on Depression, Anxiety and Stress of Infertile Women in Isfahan City. *J Health Promot Manag*, 6(5), 8-16. Martinez-Marti, M. L., & Ruch, W. (2017). Character strengths predict resilience over and above positive affect, self-efficacy, optimism, social support, self-esteem, and life satisfaction. *J. Posit. Psychol.*, 12(2), 110-119.
- Martin, J., Asan, Yi, Y., Alberola, T., Rodriguez-Iglesias, B., Jimenez-Almazan, J. et al. (2015). Comprehensive carrier genetic test using next-generation deoxyribonucleic acid sequencing in infertile couples wishing to conceive through assisted reproductive technology. *Fertil.Steril.*, 104(5), 1286-1293. doi:S0015-0282(15)01713-6 [pii];10.1016/j.fertnstert.2015.07.1166 [doi]. Retrieved from PM:26354092
- Nisolle, M., Paindaveine, B., Bourdon, A., Berliere, M., Casanas-Roux, F., & Donnez, J. (1990). Histologic study of peritoneal endometriosis in infertile women. *Fertil.Steril.*, 53(6), 984-988. doi:S0015-0282(16)53571-7 [pii];10.1016/s0015-0282(16)53571-7 [doi]. Retrieved from PM:2351237
- Peterson, B. D., & Eifert, G. H. (2011). Using Acceptance and Commitment Therapy to Treat Infertility Stress. *Cogn. Behav. Pract.*, 18(4), 577-587.
- Ryff, C. D., & Singer, B. H. (2008). Know Thyself and Become What You Are: A Eudaimonic Approach to Psychological Well-Being. *J. Happiness. Stud.*, 9(1), 13-39.
- Samadi, H., & Doustkam, M. (2014). Investigating the effectiveness of Acceptance and Commitment Therapy (ACT) on marital compatibility and life expectancy in infertile women. *International Academic Journal of Social Sciences*, 1(1), 16-27.
- Simister, H. D., Tkachuk, G. A., Shay, B. L., Vincent, N., Pear, J. J., & Skrabek, R. Q. (2018). Randomized Controlled Trial of Online Acceptance and Commitment Therapy for Fibromyalgia. *J Pain*, 19(7), 741-753. doi:S1526-5900(18)30084-1 [pii];10.1016/j.jpain.2018.02.004 [doi]. Retrieved from PM:29481976
- Taheri, H., Hasanzadeh, R., Zeinalzadeh, M., & Ghanbarpour Geravi, F. (2015). The Use of Acceptance and Commitment Therapy to Reduce Social Stress in Infertile Women. *Int.J.Fertil.Stril.*, 9(Suppl 1), 72.
- Vahidi, S., Ardalan, A., & Mohammad, K. (2009). Prevalence of primary infertility in the Islamic Republic of Iran in 2004-2005. *Asia Pac.J Public.Health*, 21(3), 287-293. doi:1010539509336009 [pii];10.1177/1010539509336009 [doi]. Retrieved from PM:19443880
- Zettle, R. D., Rains, J. C., & Hayes, S. C. (2011). Processes of change in acceptance and commitment therapy and cognitive therapy for depression: A mediation reanalysis of Zettle and Rains. *Behav Modif.*, 35(3), 265-283. doi:0145445511398344 [pii];10.1177/0145445511398344 [doi]. Retrieved from PM:21362745.