



# The Effectiveness of Acceptance and Commitment Therapy on Ego Strength and Defense Mechanisms among Adolescent Girls with Psychosomatic Complaints in a Non-Clinical Setting

Mahvash Mafi<sup>1</sup>, Ali Talaei<sup>2</sup>

1 Department of Psychology, Islamic Azad University, Lahijan Branch, Lahijan, Iran

2 Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

*Corresponding Author:* Ali Talaei; *Psychiatry and Behavioral Sciences Research Center, Mashhad University of Medical Sciences, Mashhad, Iran*

*Email:* [talaeia@mums.ac.ir](mailto:talaeia@mums.ac.ir)

## Quantitative Stud

### Abstract

**Background:** During adolescence, people undergo physical, cognitive, social-emotional, and environmental changes. Considering that the health of any society has a close relationship with the health of its adolescents, this study aimed to examine the effectiveness of acceptance and commitment therapy (ACT) in improving the ego strength and defense mechanisms of adolescents with psychosomatic complaints.

**Methods:** This study employed a semi-experimental design with a control group involved in pre-test and post-test. The statistical population was all the students of a girls' school in one district of Qazvin City (550), Iran, in 2022. The statistical sample consisted of 30 adolescent girls who were chosen on purpose for entering the research and were randomly assigned to the ACT (15 people) and the control (15 people) groups. Data were collected through Takata and Sakata scale of psychosomatic complaints, Markstrom et al.'s Ego Strength Questionnaire, and Andrews et al.'s Defense Style Questionnaire (DSQ). ACT was provided to the experimental group for 8 sessions, while the control group remained on the waiting list. Data were analyzed using analysis of covariance (ANCOVA) at a significance level of 0.05 in SPSS software.

**Results:** The ACT was not effective on the developed defense mechanism ( $P > 0.05$ ), but it was effective on the undeveloped defense mechanism, the neurotic defense mechanism, and ego strength in the post-test stage ( $P < 0.01$ ).

**Conclusion:** It is suggested that clinical psychologists use ACT to reduce the immature defense mechanisms (primary) and improve ego ability in teenagers.

**Keywords:** Acceptance and commitment therapy; Ego; Defense mechanisms; Adolescent; Female

**Citation:** Mafi M, Talaei A. **The Effectiveness of Acceptance and Commitment Therapy on Ego Strength and Defense Mechanisms among Adolescent Girls with Psychosomatic Complaints in a Non-Clinical Setting.** *Int J Body Mind Culture* 2024; 11(3).

Received: 10 June 2023

Accepted: 19 Aug. 2023

This is an open-access article distributed under the terms of the [Creative Commons Attribution-NonCommercial 4.0 Unported License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## **Introduction**

Adolescence is the beginning of physical, psychological, and social changes that affect a person's performance in adulthood and may be accompanied by problems such as worry about the future of education and work, sexual problems, discomfort, depression, alcohol and drug use, thoughts of suicide, creating problems at school, and conflict with parents and peers (Asadi, Ghasemzadeh, Nazarifar & Niroumand Sarvandani, 2020). It is estimated that 60 to 70 percent of disability and impairment of life years occur between the ages of 12 and 24 in adolescents worldwide (Patel et al., 2007). These problems are especially difficult when combined with other traumatic factors such as membership in an inappropriate peer group, insecure attachment, unclear gender identity, substance abuse, running away from school, and laws. The natural process of passing through this period is faced with serious challenges (De Micheli et al., 2015; Skinner et al., 2016; Duell & Steinberg, 2019; Greene & Patton, 2020; McNeal, 2020; Sarvandani et al., 2021).

Considering that the health of any society has a close relationship with the health of teenagers in that society in general and the health of female teenagers in that society in particular, we will examine the factors affecting the health of adolescents.

One of the factors affecting mental health from the perspective of a psychodynamic approach is ego strength. For the mind to function psychologically, the ego is essential. There is a direct correlation between health and illness and the ego's ability to deal with the pressure of desires triggered by instincts. This is done in such a way that it does not come into sharp conflict with the constraints of the real world and the superego. This capacity of the ego to manage the conflicting demands of the id, the superego, and external reality is called ego strength (Arasu, 2022). In addition, to the extent that the ego cannot create a functional balance, the personality will engage in dysfunctional functioning. Psychopathology can also be understood in terms of the conflicts that arise, as well as the ego's inability to achieve a balance between the various personality levels and how an individual manages the conflicts (i.e., the ego's defense mechanisms) (Yeates, 2014; McNeal, 2020).

Another significant component of adolescent health is defense mechanisms. By changing the way we perceive reality, defense mechanisms are unconscious reactions of "I" as a part of our personality. "I" is attempting to reduce anxiety caused by the conflict between "institution" and "order" through these processes (Cramer, 2015). According to Freud, defenses are necessary for the functioning of a healthy personality. Therefore, with sufficient insight into the defense mechanisms and awareness of the morbid feelings of people, they can easily and more clearly understand the behavior that they did not find rational until that moment and gain more information about the complaints of the disease and their attitude. Achieving such knowledge reduces painful psychiatric complaints in people and causes healthy behavioral changes in their lives (Cramer, 2006).

Regarding the formation of psychosomatic symptoms, it can be mentioned that physical, emotional, and social factors, in varying proportions, play a role in every illness confirms the importance of early experiences for the physical and emotional health of a person and suppression of emotional experience and the related initial avoidance of conflicts has a transient relief function, but in the long term, it promotes anxiety, depression, and unclear physical complaints, including chronic pain (Fritzsche et al., 2020). The psychosomatic problem represents the original nucleus at the inception of the psychoanalytic movement. Freud proposed a model that integrates the somatic, psychic, and social components, and it represents in a

convincing way physical diseases that occur as a result of psychological events (Degni, 2020).

Acceptance and commitment therapy (ACT) has therapeutic effects and has been used to treat and manage a variety of conditions, such as body image and body awareness (Givehki et al., 2018), psychosomatic symptoms and mindfulness (Sayyar Khesmakhi et al., 2019), chronic diseases (Hayes et al., 1996; Wang, 2017), malignancies (Vowles & McCracken, 2008; Zhao et al., 2017), pregnancy and childbirth (Serfaty et al., 2019; Howard et al., 2022), psychiatric-psychological disorders (Lu & Fan, 2017; Waters et al., 2020), pain, depression, mixed anxiety, obsessive-compulsive disorder (OCD), psychosis, and so on (ACBS, 2022). This suggests that the ACT has important clinical significance, and the authors call for further evaluation of the ACT's development and efficacy in future studies. Recent studies have provided ACT literature reviews based on empirical evidence.

Mohammadi et al. (2018) showed in research that therapy based on acceptance and commitment was effective on all secure, avoidant, and ambivalent attachment styles and the developed, underdeveloped, and psychotic defense mechanisms of female heads of households in Tehran, Iran.

The impact of acceptance and commitment-based group therapy on the ego strength and defensive mechanisms of adolescent girls with psychosomatic complaints has not been studied in a non-clinical setting, and there is a research void in this field. The current research seeks to answer the following question: Does it work based on acceptance, commitment, ego strength, and defense mechanisms in a non-clinical setting for adolescent girls with psychosomatic complaints?

## Methods

*Society and sample:* This was a semi-experimental study with a pre-test and post-test design with a control group. In 2022, the statistical population comprised all 550 girl pupils attending a school in one district of the city of Qazvin, Iran. The statistical sample consisted of 30 adolescent girls who were purposefully selected and replaced by a random technique (lottery) in the treatment (15 individuals) and control (15 individuals) groups. Consortium diagram of the present study is presented in Figure 1.

*Inclusion criteria:* Girls in the age range of 14 to 17, with a psychosomatic questionnaire score of 60 to 90 (the criterion for participation in ACT group training and the need for intervention in the current study was a score of 60 or above in the questionnaire of psychosomatic complaints, which indicates a severe score in the complaints), self and legal guardian satisfaction in conducting the research, interest in participating in the research, no psychological or medical disorder, and not taking psychiatric medication were included in the study.

*Exclusion criteria:* Exclusion criteria were being absent for more than three sessions, being more than three sessions late for more than 30 minutes, not performing exercises and treatment techniques, and defects in completing the questionnaires (if 20% of the questions in the research questionnaires have not been answered).

## Tools

*Psychosomatic complaints scale:* Takata and Sakata (2004) developed and validated the psychosomatic complaints scale for teenagers in Japan. It consists of 30 questions and has a single-factor structure that is used to measure psychosomatic complaints. The questionnaire is scored on a 4-point Likert scale, with 0, 1, 2, and 3 points assigned to the responses "never", "rarely", "sometimes", and "often", respectively. The scores 0-30 indicate mild problems, 31-60 indicate moderate complaints, and 61-90 indicate a severe and acute condition.

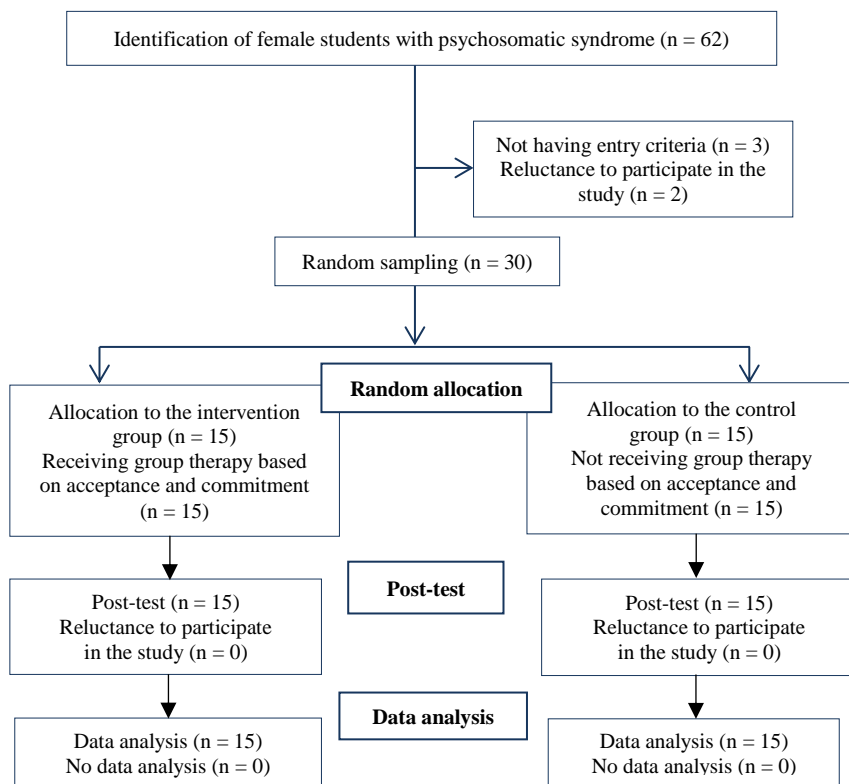


Figure 1. Consortia diagram of the present study

The test-retest reliability of the scale of psychosomatic complaints was confirmed one month apart and on two occasions on a sample of 30 students ( $r = 0.83$ ). Cronbach's alpha coefficient obtained on the original sample was equal to 0.85, which indicates high internal consistency for the parts of this scale (Hajlo, 2011).

**Ego Strength Questionnaire:** The Ego Strength Questionnaire was created by Markstrom et al. (1997). The final version of this questionnaire contains 64 items evaluated on a five-point. It also includes a 32-item abbreviated version, which was utilized in this study. Markstrom and Marshall (2007) supported the internal consistency (Cronbach's alpha = 0.94) of the scale.. Several investigations proved its internal consistency, and its concurrent validity was demonstrated by investigating its association with self-esteem, life goal orientation, self-control, and sexual roles ( $r = 0.70$ ). In addition, the negative association ( $r = -0.73$ ) between ego strength and despair, identity disorder, and helplessness revealed its divergent validity.

**Defense Style Questionnaire (DSQ-40):** This questionnaire was developed based on the hierarchical model of defenses by Andrews et al. (1993), which includes 40 questions and 50 defenses at three levels: Immature defense style (denial, isolation, devaluation, and externalization), mature (sublimation, irony, suppression, and reparatory), and disturbed neurotic (refutation, altruism, idealization, and reverse reaction). The questions are set on a 9-point Likert scale (from completely agree to completely disagree), and a score higher than 10 in each defense is a sign of the

individual's use of that defense (Andrews, Singh and Bond, 1993).

*Treatment protocol:* The treatment sessions were given to the subjects of the experimental group in 8 sessions (one session each week for 90 minutes) according to the program that was made before the sessions and using the principles of treatment based on acceptance and commitment by the researcher in Qazvin City, and the control group did not receive any training. ACT protocol is based on the theoretical foundations of this approach and based on the ACT manual (Turrell & Bell, 2016).

Data analysis was done using SPSS software (version 26, IBM Corporation, Armonk, NY, USA). To compare the difference between the two experimental and control groups in the variables of defense mechanisms and ego strength, analysis of covariance (ANCOVA), multivariate ANCOVA (MANCOVA), and parametric tests were used. The description of the data was also reported based on the mean  $\pm$  standard deviation (SD), and  $P < 0.05$  was considered a significance level in the analysis.

## Results

The experimental group's average age was  $15.47 \pm 1.26$  years, while the control group's average age was  $15.40 \pm 1.18$ . In the experimental group, 26.6% of parents of teenagers were employees, 46.68% were workers, and 26.6% were freelancers. In the control group, 20% of teenagers' parents were employees, 40% were workers, and 40% were freelancers. In the experimental group, 46.68% of the teenagers' fathers had a bachelor's degree, 33.34% had a diploma, and 20% had a university education. 20% of mothers of teenagers had below-diploma education (46.68% had diplomas and 33.34% had university education). In the control group, 20% of the teenagers' fathers had a bachelor's degree, 60% had a diploma, and 40% had a university education. 20% of mothers of teenagers had education below the diploma level, 53.34% had a diploma, and 26.66% had a university degree.

The results indicated that the treatment based on ACT was not effective on the developed defense mechanism ( $P > 0.05$ ), but it was effective on the undeveloped defense mechanism, the neurotic defense mechanism, and ego strength in the post-test stage ( $P < 0.05$ ). The results of partial eta squared ( $\eta^2$ ) showed that the effect of therapy based on acceptance and commitment on the ego's ability was greater than that of the undeveloped defense mechanism and the neurotic defense mechanism (Table 1).

## Discussion

A study was undertaken in a non-clinical setting to assess the efficacy of acceptance and commitment-based group therapy on adolescent girls with psychosomatic complaints. The present study revealed that the treatment based on acceptance and commitment was ineffective on the developed defense mechanism but effective on the undeveloped defense mechanism, the neurotic defense mechanism, and ego strength during the post-test phase. This finding agrees with the findings of Lu and Fan (2017), Waters et al. (2020), and Mohammadi et al. (2018). To explain the effectiveness of ACT on the ego capacity and defense mechanisms of adolescents, it can be stated that ACT is a behavioral therapy that increases psychological flexibility by utilizing the skills of mindfulness, acceptance, and cognitive impairment.

**Table 1.** Means and standard deviations (SDs) of the variables of the groups in the pre-test and post-test stages

Variable	Group	Pre-test	P-value	Post-test	F	P-value	$\eta^2$
		Mean $\pm$ SD		Mean $\pm$ SD			
Mature defense mechanism	ACT	25.73 $\pm$ 7.19	0.55	37.06 $\pm$ 4.54	0.87	0.3600	0.035
	Control	24.13 $\pm$ 7.19		34.26 $\pm$ 5.58			
Immature defense mechanism	ACT	116.13 $\pm$ 18.45	0.54	67.46 $\pm$ 9.93	26.97	0.0001	0.520
	Control	112.46 $\pm$ 13.18		99.60 $\pm$ 18.08			
Neurotic defense mechanism	ACT	36.13 $\pm$ 7.35	0.42	22.86 $\pm$ 4.10	17.44	0.0001	0.420
	Control	34.33 $\pm$ 4.36		33.13 $\pm$ 6.81			
The power of the ego	ACT	78.66 $\pm$ 11.56	0.11	103.20 $\pm$ 10.75	58.20	0.0001	0.710
	Control	85.26 $\pm$ 10.58		82.53 $\pm$ 8.99			

ACT: Acceptance and commitment therapy; SD: Standard deviation

Bodily awareness/mindfulness plays a role in shifting from automatic and destructive thoughts to feelings of the body which help to release tension and be more flexible in trauma and distress so that the healing expectation is facilitated, and placebo mechanisms become active also when we experience our whole body as an integral and non-judgmental state of mind and a more secure emotional state, which may facilitate more positive feeling about our future body (Goli, 2022).

In the present study, according to the treatment protocol based on commitment and acceptance, cognitive flexibility is the increase in the client's ability to connect with their experience in the present and, based on what is possible for them at that moment, to want to act in different ways which are consistent with their chosen values. The central processes of therapy based on commitment and acceptance teach people how to let go of the idea of inhibiting thought and get rid of disturbing thoughts; instead of the conceptualized self, strengthen the observed self, accept internal events instead of controlling them, clarify their values, and address them (Hayes & Strosahl, 2005). Moreover, acceptance of feelings and observation of thought can change the mind-body meaning system and sequentially the symptom formation pathways (Goli, 2016).

Treatment based on acceptance and commitment is the only psychological and experimental intervention in which acceptance and mindfulness strategies are used together with commitment and behavior change strategies to increase psychological flexibility (ability to change or maintain stability, along with functional behaviors that are the way those goals are realized) and also prepare a person to face the situation without the need to control or overcome it, while reducing avoidance strategies and increasing the level of activity and control of emotions (Hayes et al., 2013). These cases were also included in the treatment sessions of the present study. In addition to that, in the present research, according to the treatment protocol based on commitment and acceptance, teenagers were taught to accept their feelings rather than distance themselves from them and to address their thoughts and thought processes through mindfulness and turn them into activities. The link is goal-oriented. They were taught to experience their thoughts and feelings instead of trying to stop them, people are asked to work towards their goals and values and to experience their thoughts and feelings. According to the explanations and exercises the teenagers did during the treatment sessions, the treatment based on commitment and acceptance of the ego's capabilities and defense mechanisms was effective.

## Conclusion

It is suggested that clinical psychologists use ACT to reduce immature defense mechanisms (primary) and improve ego ability in teenagers.

## Conflict of Interests

Authors have no conflict of interests.

## Acknowledgements

This article is based on a post-doctoral research project at Mashhad University of Medical Sciences, Mashhad, Iran, and follows the Mashhad University of Medical Sciences Code of Ethics IR.MUMS.MEDICAL.REC.1401.289. When making this research and putting it together, ethical principles were taken into account. Participants were informed of the goal of the study, and their information was kept strictly confidential and utilized for research purposes only.

The authors thank and appreciate all the adolescent girls, their families, and school staff who participated in the present study. It should be noted that it was impossible to conduct research without their very sincere cooperation.

## References

- Andrews, G., Singh, M., & Bond, M. (1993). The Defense Style Questionnaire. *J Nerv Ment Dis*, 181(4), 246-256. doi:10.1097/00005053-199304000-00006 [doi].
- Asadi, M., Ghasemzadeh, N., Nazarifar, M., & Niroumand Sarvandani, M. (2020). The Effectiveness of emotion-focused couple therapy on marital satisfaction and positive feelings towards the spouse. *International Journal of Health Studies*, 6(4), 36-40. doi: 10.22100/ijhs.v6i4.804 [doi].
- Association for Contextual Behavioral Science. (2022). State of the ACT Evidence. [Online]. Available from: URL: [https://contextualscience.org/state\\_of\\_the\\_act\\_evidence](https://contextualscience.org/state_of_the_act_evidence). Accessed 2022.
- Cramer, P. (2015). Defense mechanisms: 40 years of empirical research. *J Pers.Assess.*, 97(2), 114-122. doi:10.1080/00223891.2014.947997 [doi]. Retrieved from PM:25157632
- Cramer, P. (2006). *Protecting the self: Defense mechanisms in action*. New York, NY: Guilford Press.
- Arasu, R. (2022). A conceptual review on ego-strength and organisational performance. *Journal of Social Responsibility, Tourism and Hospitality(JSRTH) ISSN 2799-1016*, 2(01), 14-17. doi:10.55529/jsrth.21.14.17 [doi]
- Degni, S. (2020). *Psychoanalysis and Psychosomatics in Europe*. Oxford Research Encyclopedia of Psychology. Oxford, UK: Oxford University Press.
- Duell, N., & Steinberg, L. (2019). Positive risk taking in adolescence. *Child Dev Perspect.*, 13(1), 48-52. doi:10.1111/cdep.12310 [doi]. Retrieved from PM:30774707
- Fritzsche, J. A., Klein, A., Beekman, M. J., van Hooft, J. E., Sidhu, M., Schoeman, S. et al. (2021). Endoscopic papillectomy; a retrospective international multicenter cohort study with long-term follow-up. *Surg Endosc.*, 35(11), 6259-6267. doi:10.1007/s00464-020-08126-x [pii];8126 [pii];10.1007/s00464-020-08126-x [doi]. Retrieved from PM:33159297
- Givehki, R., Afshar, H., Goli, F., Scheidt, C. E., Omidi, A., & Davoudi, M. (2018). Effect of acceptance and commitment therapy on body image flexibility and body awareness in patients with psychosomatic disorders: a randomized clinical trial. *Electron.Physician.*, 10(7), 7008-7016. doi:epj-10-7008 [pii];10.19082/7008 [doi]. Retrieved from PM:30128091.



Goossens, L. (2006). Affect, emotion, and loneliness in adolescence. In Jackson S & Goossens L (Eds.), *Handbook of adolescent development* (pp. 51-70). London, UK: Psychology Press.

Greene, M. E., & Patton, G. (2020). Adolescence and gender equality in health. *J Adolesc Health, 66*(1S), S1-S2. doi:S1054-139X(19)30511-7 [pii];10.1016/j.jadohealth.2019.10.012 [doi]. Retrieved from PM:31866032

Goli, F. (2022). Body, Meaning, and Time: Healing Response as a Transtemporal and Multimodal Meaning-Making Process. In M. Nadin (Ed.), *Epigenetics and Anticipation* (pp. 79-97). Cham: Springer International Publishing.

Goli, F. (2016). Medical Practice in/with the Semiosphere. In F. Goli (Ed.), *Biosemiotic Medicine: Healing in the World of Meaning* (pp. 217-239). Cham: Springer International Publishing.

Hajloo, N., Sobhi Gharamaleki, N., Rahbar Taramsari, M., & Haghigatgoo, M. (2011). Survey the relationship between perfectionism and job burnout in nurses. *J Guilan Univ Med Sci, 20*(77), 23-30.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experimental avoidance and behavioral disorders: a functional dimensional approach to diagnosis and treatment. *J Consult.Clin Psychol, 64*(6), 1152-1168. doi:10.1037//0022-006x.64.6.1152 [doi]. Retrieved from PM:8991302

Hayes, S. C., Strosahl, K. D., & Strosahl, K. (2004). *A Practical guide to acceptance and commitment therapy*. New York, NY: Springer.

Hayes, S. C., Levin, M. E., Plumb-Villardaga, J., Villatte, J. L., & Pistorello, J. (2013). Acceptance and commitment therapy and contextual behavioral science: Examining the progress of a distinctive model of behavioral and cognitive therapy. *Behav Ther, 44*(2), 180-198. doi:S0005-7894(11)00066-9 [pii];10.1016/j.beth.2009.08.002 [doi]. Retrieved from PM:23611068

Howard, S., Houghton, C. M. G., White, R., Fallon, V., & Slade, P. (2023). The feasibility and acceptability of a single-session Acceptance and Commitment Therapy (ACT) intervention to support women self-reporting fear of childbirth in a first pregnancy. *Psychol Health, 38*(11), 1460-1481. doi:10.1080/08870446.2021.2024190 [doi]. Retrieved from PM:35060404

Lu, D. (2024). and Fan, J.Q. (2017) Effects of routine nursing combined with acceptance and commitment therapy on depression, self-efficacy and self-esteem in postpartum depression patients. *Sichuan Mental Health, 30*, 253-255.

Markstrom, C. A., & Marshall, S. K. (2007). The psychosocial inventory of ego strengths: examination of theory and psychometric properties. *J Adolesc, 30*(1), 63-79. doi:S0140-1971(05)00153-3 [pii];10.1016/j.adolescence.2005.11.003 [doi]. Retrieved from PM:16635525

Markstrom, C. A., Sabino, V. M., Turner, B. J., & Berman, R. C. (1997). The psychosocial inventory of ego strengths: Development and validation of a new Eriksonian measure. *J Youth Adolesc, 26*, 705-732.

McNeal, S. (2020). Hypnotic Ego-strengthening: Where we've been and the road ahead. *American Journal of Clinical Hypnosis, 62*(4), 392-408. doi:10.1080/00029157.2019.1709151 [doi]

Mohammadi, S., Khoshnevis, E., & Jalaei, S. (2019). The effectiveness of acceptance and commitment therapy on attachment styles and defensive mechanisms of female heads of households. *Journal of Analytical - Cognitive Psychology, 10*(38), 23-35.

Patel, V., Flisher, A. J., Hetrick, S., & McGorry, P. (2007). Mental health of young people: A global public-health challenge. *Lancet, 369*(9569), 1302-1313. doi:S0140-6736(07)60368-7 [pii];10.1016/S0140-6736(07)60368-7 [doi]. Retrieved from PM:17434406

Sarvandani, M. N., Moghadam, N. K., Moghadam, H. K., Asadi, M., Rafeiee, R., & Soleimani, M. (2021). The effectiveness of mindfulness-based stress reduction (MBSR)



treatment on anxiety, depression and prevention of substance use relapse. *Int J HealthStud*, 7(2), 12-16. doi: 10.22100/ijhs.v7i2.848 [doi].

Sayyar Khesmakhi, S., Afshar zanjani, H., Goli, F., Omidi, A., Eduard Scheidt, C., & Givehki, R. (2019). Effectiveness of Acceptance and Commitment Therapy on Psychosomatic Symptoms and Mindfulness in Patients With Psychosomatic Disorders. *Practise in Clinical Psychology*, 7(2), 79-86. doi:10.32598/jpcp.7.2.79 [doi]

Serfaty, M., Armstrong, M., Vickerstaff, V., Davis, S., Gola, A., McNamee, P. et al. (2019). Acceptance and commitment therapy for adults with advanced cancer (CanACT): A feasibility randomised controlled trial. *Psychooncology*, 28(3), 488-496. doi:10.1002/pon.4960 [doi]. Retrieved from PM:30511788

Skinner, E. A., & Zimmer-Gembeck, M. J. (2016). Parenting, family stress, developmental cascades, and the differential development of coping. In E.A. Skinner & M. J. Zimmer-Gembeck (Eds.), *The development of coping: stress, neurophysiology, social relationships, and resilience during childhood and adolescence* (pp. 239-261). Cham, Switzerland: Springer International Publishing.

Takata, Y., & Sakata, Y. (2004). Development of a psychosomatic complaints scale for adolescents. *Psychiatry Clin Neurosci*, 58(1), 3-7. doi:1184 [pii];10.1111/j.1440-1819.2004.01184.x [doi]. Retrieved from PM:14678449

Turrell, S. L., Bell, M., & Wilson, K. G. (2016). *ACT for adolescents: treating teens and adolescents in individual and group therapy*. Oakland, CA: New Harbinger Publications.

Vitalle, M. S. d. S. (2016). The Neurohormonal System in Adolescence. In D. De Micheli, A. L. M. Andrade, E. A. da Silva, & M. L. O. de Souza Formigoni (Eds.), *Drug abuse in adolescence: neurobiological, cognitive, and psychological issues* (pp. 3-11). Cham, Switzerland: Springer International Publishing.

Vowles, K. E., & McCracken, L. M. (2008). Acceptance and values-based action in chronic pain: A study of treatment effectiveness and process. *J Consult.Clin Psychol*, 76(3), 397-407. doi:2008-06469-004 [pii];10.1037/0022-006X.76.3.397 [doi]. Retrieved from PM:18540733

Wang, X. (2017). Application of acceptance and commitment therapy in patients with diabetic foot amputation. *Nurs.Res.China*, 31, 2885-2888.

Waters, C. S., Annear, B., Flockhart, G., Jones, I., Simmonds, J. R., Smith, S. et al. (2020). Acceptance and commitment therapy for perinatal mood and anxiety disorders: A feasibility and proof of concept study. *Br.J Clin Psychol*, 59(4), 461-479. doi:10.1111/bjc.12261 [doi]. Retrieved from PM:32715513

Yeates, L. (2014). Hartland's legacy (I): The ego strengthening procedure. *Aust J Clin Hypnother Hypn*, 36(1), 4-18.

Youngs, D. (2006). *The Life-Cycle in Western Europe, C.1300-1500*. Manchester Medieval Studies. Manchester, UK: Manchester University Press.

Zhao, D., Luo, S., Xu, W., Hu, J., Lin, S., & Wang, N. (2017). Efficacy and safety of hyperbaric oxygen therapy used in patients with diabetic foot: A meta-analysis of randomized clinical trials. *Clin Ther*, 39(10), 2088-2094.