Effects of Cognitive-Behavioral Therapy on Academic Anxiety of Children with Learning Disorders

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Abstract

Background: Reports showed that a cognitive-behavioral therapy effectively helps patients overcome a wide variety of maladaptive behaviors such as anxiety. The aim of the present study was to further examine this issue by exploring the effects of a cognitive-behavioral therapy on academic anxiety of children with learning disorders.

Methods: The quasi-experimental research design was pretest-posttest with a control group. The statistical population included 32 children (9-13 years) with academic anxiety (mild, moderate and severe) who were selected by convenience sampling method and randomly (using a coin-throwing method) assigned to two experimental and control groups. The standard School Anxiety Scale questionnaire was used to measure academic anxiety. The behavioral-cognitive therapy program was implemented for 12 sessions, 3 sessions of 45 minutes each week for the experimental group. After the intervention, all participants participated in posttest. Paired sample t test, independent t test, and analysis of covariance were used to analyze data.

Results: The average of academic anxiety before the intervention in the experimental and control groups was 23.94 ± 2.18 and 22.87 ± 3.64, respectively, and the independent t-test did not show a significant difference (P=0.39). The average of the groups shows that the academic anxiety scores of the experimental group have decreased compared to the pre-test scores (t=16.58, P<0.001). Finally, the results of ANCOVA showed that a cognitive-behavioral therapy has led to a reduction in academic anxiety (P<0.001).

Conclusion: Reconstructing children's thoughts and beliefs helps them to identify their wrong thoughts about the exam and gradually replace them with correct beliefs and thoughts. Therefore, teachers and practitioners can use cognitive-behavioral therapy to help children with learning disorders to have less anxiety without feeling hurt from the negative evaluation of others.

Keywords: Academic anxiety, child, learning disabilities, cognitive-behavioral therapy

Introduction

Anxiety is a pervasive, unpleasant, ambiguous state accompanied by the excitation of the autonomic nervous system, headache, sweating, heart palpitations, cramping of the chest muscles, digestive discomfort and restlessness which is created in response to internal and external stimuli and to cognitive symptoms and leads to emotional, physical and behavioral problems (American Psychological Association, 2014; Davidson, 2003; Jolivet, et al. 2010). Anxiety is not a new disorder and humans have experienced it in all ages and in every culture, but today one of the worries and concerns of the education system of every country is the issue of anxiety in students, which is difficult to bear for many of them (Masten, 2001; Sadeghipor & Aghdam, 2021).

There are different types of anxiety in children such as separation anxiety (i.e., when someone fears being apart from or losing a person), fobia (i.e., a short puzzle-platformer adventure game developed by two people), and social anxiety (i.e., an intense, persistent fear of being watched and judged by others). Academic anxiety, which occurs during school career, is also among the most important type of anxiety in children during school time (Sadeghpour & Sangchini, 2020; Taso, et al. 2014). This anxiety threatens the children's mental health and has a negative effect on the efficiency and flourishing of talents, the formation of their personality and social identity (Abdi, et al. 2022; Afsanepurak, et al. 2012; Dana & Shams, 2019). Academic anxiety is a general term, which refers to a specific type of anxiety or social fear that makes a person doubt about his abilities and the result is a decrease in the ability to deal with situations such as exams; situations that expose a person to evaluation (Dana, et al. 2021; Ghorbani & Bund, 2014, 2016; 2017; Ghorbani, et al. 2020; Khosravi et al. 2023). This kind of anxiety, which is a common form of performance anxiety, affects 10 to 30 percent of school-students. In fact, academic anxiety is a type of self-preoccupation that is characterized by self-deprecation and doubts about individual abilities, and often leads to negative cognitive evaluation, lack of concentration, adverse physiological reactions such as increased heart rate, cold fingers, and academic failure (Moradi, et al. 2020; Sadeghipor & Aghdam, 2021). This anxiety is related to students' competition with their classmates and their negative evaluation of other classmates, especially those who are more capable, the teacher's way of working, assignments, exams and inappropriate strictness, academic status and worry about the future (Sadeghipor, Kabiri & Aghdam, 2021; Seyedi-Asl, et al. 2021; Seyedi-Asl, et al. 2016; Taghva, et al. 2020). Hence, it seems that the fear of getting a low grade and blaming the family, mocking classmates and friends, fear of not being able to continue studying and especially being accepted in the entrance exam to enter the university, always make students suffer psychologically (Faircloth, 2017). In this regard, previous experiments showed that some interventions such as school-based prevention (Sadeghipor, Kabiri & Aghdam, 2021), cognition restructuring (Sadeghipor, Aghdam, & Kabiri, 2021), or psychoeducation and systematic desensitization (Dana, et al. 2021) methods can reduce academic anxiety in children.

In the meantime, a method that has contributed the most in research and inventing treatment methods is cognitive-behavioral perspective. Cognitive behavioral therapy (CBT) is a form of

psychotherapy that helps people learn how to identify and change destructive or disruptive thought patterns that negatively affect behavior and emotions (Herrick, et al. 2020). Cognitive behavioral therapy focuses on changing automatic negative thoughts that can lead to and worsen emotional problems, depression, and anxiety (Letvak, Ruhm, & Mccoy, 2012; Mikkelsen, et al. 2017; Newhan, et al. 2014; Ohler, et al. 2010). CBT is the most commonly utilized method to treat mental disorders such as anxiety and depression from children to older adults (Vasconcelos, et al. 2013; Sharma, 2014). These negative thoughts by themselves have a destructive effect on the mood. Through CBT, these thoughts are identified, challenged, and replaced with more objective and realistic thoughts (Ramachandra, et al. 2013;). Modern cognitive-behavioral therapies refer to a group of interventions that are a combination of cognitive, behavioral, and emotion-oriented techniques (Ulger & Yagli, 2010). Since cognitive-behavioral therapy is a short-term treatment, it is usually less expensive than other treatments. The benefits of this treatment have also been shown experimentally and it has been found that it effectively helps patients overcome a wide variety of maladaptive behaviors such as anxiety (Bandura, 1997; Conner & Davidson, 2003; Hartfiel, et al. 2011). However, the effects of cognitive-behavioral therapy on academic anxiety, especially in students with learning disorders, has been less investigated. A learning disability is an impairment of one or more basic psychological processes involved in understanding or using language, speech or writing, and may manifest itself in the ability to listen, speak, read, spell or perform mathematical calculations (Sadeghipor, Aghdam, & Kabiri, 2021). The children with learning disabilities needs special attention and therefore may suffer from some mental health such as anxiety. Hence, findings the ways to reduce different kinds of anxiety in children with learning disabilities seems to be of great importance. Therefore, the aim of the present study was to expand previous findings by exploring the effects of a cognitive-behavioral therapy on academic anxiety of children with learning disorders.

Methods

The quasi-experimental research design was pretest-posttest with a control group.

The statistical population included all students from the third to the sixth grade in four centers for learning disorders in Tehran (n=149). The revised Wechsler IQ test for children, fourth edition, and the Colorado Learning Difficulties Questionnaire were administered to diagnose specific learning disorders in the referring students. Of them, 32 children with academic anxiety (mild, moderate and severe) met the conditions to enter the research were selected by convenience sampling method and randomly assigned to two experimental and control groups. The sample size was determined using G-Power software (α=0.01 and power test=0.95), indicating a total sample size of 32 participants. After declaring the consent of parents and students, the experimental group was subjected to intervention and during this period the control group did not receive any intervention. After the intervention, a post-test was performed for both groups. The inclusion criteria included the presence of the child in the learning disability center, the age range of 9 to 13

years, parent, child and teacher consent, not receiving another treatment program at the same time, having academic anxiety, and not having any other disorder besides special learning disorder.

The data collection method was a self-report questionnaire consisting of two parts. The first part included six questions about demographic characteristics and the second part included the academic anxiety questionnaire for students. In this study, the standard School Anxiety Scale questionnaire (Letvak, Ruhm, & Mccoy, 2012) was used. This questionnaire contains 30 questions with yes and no answers, the maximum score of which is 30 and the minimum score is zero, and its scores are divided into mild (0 to 10), moderate (10 to 20) and severe (21 to 30). Reliability of this questionnaire was 0.92 in this study.

The therapy program was implemented for 12 sessions, 3 sessions of 45 minutes each week for the experimental group. After the intervention, all participants participated in posttest. The sessions were as follows: 1) Creating a good impression and favorable conditions and interest among the students; 2) the students were asked to write and present their thoughts and feelings about the academic anxiety on a sheet; 3) the assignments were reviewed and they were asked to express their feelings and ideas in the class, and with the cooperation of the students, they were summarized and they were taught to identify their wrong thoughts and inefficient beliefs and come up with effective thoughts. They were taught to know their strengths and weaknesses and to expect them accordingly. It was also taught that studying is important, but there are other things in life that can be important and studying is not everything. They were also asked to identify their other ineffective thoughts as a homework exercise and try to replace them with effective thoughts; 4) they were taught to control themselves and keep calm when they feel anxious. They were taught relaxation. As a task, they were asked to practice calming at home in case of anxiety in order to overcome their anxiety; 5) some learning strategies were taught. As an assignment, they were asked to practice a method of studying that they think is desirable and act in learning based on its principles; 6) with the help of one of the students, he created an exam situation and they were asked to comment on the actions that the student in question does in the exam session and state his mistakes, and finally he asked them they should create such a situation for themselves at home and write their actions on the paper and present them in the next session; 7) explanations were given on how to manage their time and how to answer the questions and try to answer the easy questions first and then go to the more difficult questions. It was explained that providing an incomplete answer is better than no answer, and at the end, the content of a textbook that everyone agreed on was determined, and it was decided that the next session would be an exam from this section. In fact, the goal was to put the students in the exam situation and correct their mistakes; 8) the exam was conducted and the necessary feedback was given to them regarding how the students behaved in the exam and how to answer the questions. In relation to the guidelines of the study and how it was done, opinions were also discussed; 9) explanations were given regarding the effects of nutrition and sports activities in reducing exam anxiety. They were also taught about healthy nutrition and some sports movements were taught and they were asked to perform these movements regularly during their daily activities; 10) explanations were given to the parents of the children on how to deal with children and expectations according to children's abilities; 11)

explanations were given regarding having enough sleep on the exam days and regular and predetermined planning for the exam day and not accumulating material for the exam night and its effectiveness in sustainable learning; 12) while reviewing the previous materials, the post-test was conducted.

In order to analyze the data, in the descriptive statistics section, the mean and standard deviation were calculated, and in the inferential statistics section, Kolmogorov-Smirnov test, paired sample t test, independent t test, and analysis of covariance were used using SPSS version 26. To check the hypothesis of homogeneity of error variance, Box's test and Levin's test were used. P-value was set at p<0.05.

Results

Demographic characteristics of the sample showed that children were at age range of 9-13 years old with an average of 11.39 and a standard deviation of 0.71. In addition, height of them had an average of 121.73 cm and average of children's weight was 32.57 kg.

Descriptive indices of the academic anxiety and its components across groups and pretest-posttest are presented in Table 1 and Figure 1.

Table 1. Comparing the mean scores of groups in the pre-test ad post-test

	Groups	
	Intervention	*Control*
	M±SD	*M±SD*
Pretest	23.94±2.18	22.87±3.64
Posttest	17.31±4.77	23.08±2.92

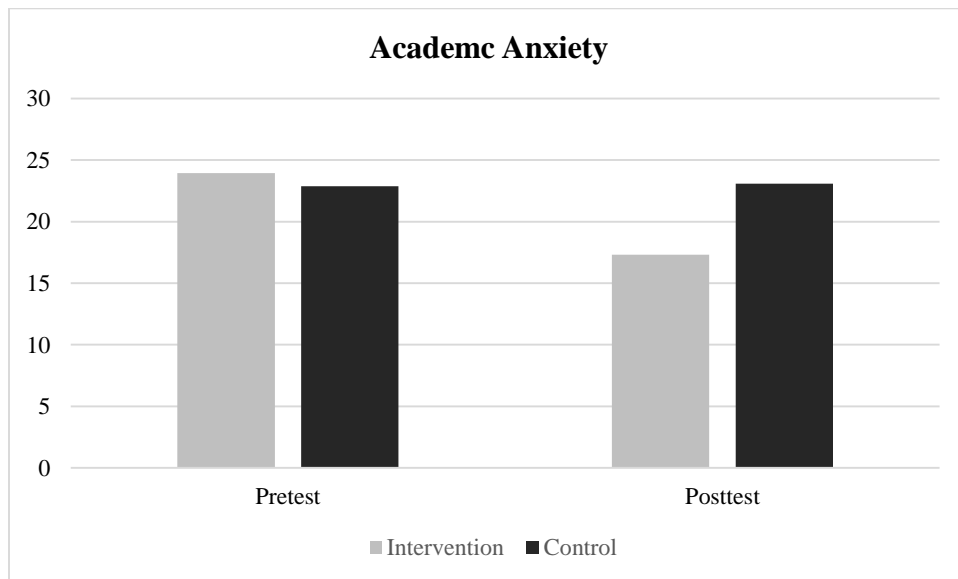
Figure 1. Mean scores of groups in the pre-test ad post-test

To check the hypothesis of homogeneity of error variance, Box's test (M BOX=25.17, F=0.86, P>0.05) and Levin's test (F=1.21, P>0.05) were used. These tests did not show any violation of this assumption. Accordingly, the average of academic anxiety before the intervention in the experimental and control groups was 23.94±2.18 and 22.87±3.64, respectively, and the independent t-test did not show a significant difference (P=0.39). The average of the groups shows that the academic anxiety scores of the experimental group have decreased compared to the pre-test scores (t=16.58, P<0.001). Moreover, multi-way analysis of covariance was used to analyze the data. For this purpose, the assumptions of the covariance analysis test, i.e., the assumption of normality of the distribution, were checked using the Kolmogorov-Smirnov test (P>0.05) and the results of the normality of the distribution were confirmed. The results of the assumption of homogeneity of slopes (F=158.69) and the assumption of linearity (F=104.55) were also checked and confirmed. To investigate the effects of cognitive-behavioral therapy on reducing academic anxiety, univariate analysis of covariance test was used, the results of which are shown in Table 2.

Table 2. The results of analysis of covariance of the difference between the experimental and control groups in the academic anxiety score

	Sum of squares	df	Mean od squares	F	P
Pretest	340.85	1	340.85	74.19	<0.001
Group	1429.66	1	1429.66	330.47	<0.001
Error	111.09	31	4.49		

The results of Table 2 show that there is a significant difference in the academic anxiety score between the experimental and control groups (P<0.001). Considering that the average of the experimental group shows an improvement in the dependent variable compared to the control group, it can be concluded that cognitive-behavioral therapy has led to a reduction in academic anxiety.

Discussion

The effects of cognitive-behavioral therapy on academic anxiety, especially in students with learning disorders, has been less investigated. The aim of the present study was, therefore, to expand previous findings by exploring the effects of a cognitive-behavioral therapy on academic anxiety of children with learning disorders. The results of this study showed that a cognitive-behavioral intervention is effective in reducing the academic anxiety of children with learning disorders. In explaining the effectiveness of cognitive-behavioral therapy in this study, it can be stated that reconstructing children's thoughts and beliefs helps them to identify their wrong thoughts about the exam and gradually replace them with correct beliefs and thoughts, and this causes them to have problems see themselves from different aspects and as a result, new opportunities will be created for them and their attitude towards the exam will change and they

will choose their goals realistically and take responsibility for their actions and thoughts and their emotional and behavioral responses will also change (Moradi, et al. 2020; Sadeghipor & Aghdam, 2021). Changing beliefs and thoughts not only about the exam, but also about the academic performance makes them able to change their expectations, have reasonable and appropriate expectations of themselves, perform better and more effectively, and as a result, suffer less anxiety (Sadeghipor, Aghdam, & Kabiri, 2021). The results of previous studies have also shown that identifying and accepting disturbing and unreasonable thoughts helps children to easily control them and challenge their basis and logic, guide these thoughts and exchange them with reasonable and desirable thoughts. and change their actions and make decisions based on objective facts and take new actions for their current conditions (Sadeghipor, Kabiri & Aghdam, 2021; Seyedi-Asl, et al. 2021). The use of relaxation as a treatment and process diverts children's awareness of worrying and anxious feelings and reduces the physiological aspects of anxiety, and aims to teach clients to recognize the early signs of anxiety and the physiological aspects of anxiety. Pay attention to it and react by calming down before this cycle of anxiety has a chance to spread, and with repetition and practice, children's experience of anxiety will gradually change and the cycle of anxiety will stop (Seyedi-Asl, et al. 2016; Taghva, et al. 2020).

Teaching and using calming movements, along with rebuilding children's thinking, creates the ground that they can reduce their anxiety and physical tension and gradually control it. At the same time, their concentration, accuracy and learning will increase and they will enjoy better physical and mental conditions (Dana, et al. 2021). By controlling and reducing physical and mental tension through relaxation, children can process their thoughts and feelings, think clearly and deal with anxious behaviors in the right way, and finally their performance in the school situation improves and their willingness for learning and education increases. In fact, teaching appropriate behaviors helps children to become aware of problems in their behavior, remove it, or change and implement it in a way they like (Ramachandra, et al. 2013; Ulger & Yagli, 2010; Vasconcelos, et al. 2013). In fact, the goal is to change incompatible behaviors and practices. Also, teaching different behavioral techniques affects children's responses and helps them provide a new response for conditioning and dealing with past stimuli. In this study, teaching proper behaviors about healthy eating, physical activities, and study and learning strategies helped children to put aside the wrong ways of the past and learn proper behaviors, preparation have better, gain pleasant experiences and reduce their anxiety and worry. In a previous study, it was stated that re-creating an anxiety-provoking situation allows children to reduce their worries and tensions by facing these conditions, and ultimately, their self-confidence increases and their skills expand (Sharma, 2014). In the current intervention, the implementation of a demonstration exam situation led to the fact that they could observe the performance and behavior of their peers in the exam situation and come to the conclusion that there are not many people like them and try to solve it and remove this anxiety and perform better (Ghorbani & Bund, 2014).

In addition, group training and counseling for parents is extremely important. They become aware of their children's problems in various fields and their signs and symptoms, and challenge and change their wrong thought patterns, and this leads to the fact that the stress and worry of the

parents themselves will also decrease (Khosravi et al. 2023). Research has shown that teaching parents makes them have more control over their children and understand their problems. Finally, the functioning of the family will also change, and in the future, their lives will have a better quality, and the children will feel calm and secure, and their anxiety and various worries will decrease (Masten, 2001; Sadeghipor & Aghdam, 2021).

Limitations and strengths

A limitation of the current study was that we used self-report tools for measuring the research variables that usually show people to be better than they are. As well as, we did not use anu clinical interview for measuring anxiety. As a strength, it can be said that using a population from special groups, i.e., learning disabilities, was a strength to this study.

Conclusion

To conclude, it can be claimed that cognitive-behavioral therapy as an intervention in reducing academic anxiety in children with learning disorders. Therefore, it can be pointed out that cognitive-behavioral therapy helps children with learning disorders to have less anxiety without feeling hurt from the negative evaluation of others. As a results, it can be suggested that teachers in special schools, especially those who work with students with learning disabilities, can use CBT for reducing academic anxiety of children. Finally, considering the special features of the children with learning disorders, further studies are needed regarding the relationship of some personality traits, the type of parental control with academic anxiety and the implementation of group intervention strategies.

References

Abdi, K., Hosseini, F. B., Chaharbaghi, Z., & Ghorbani, S. (2022). Impact of social support on wellbeing and health-related quality of life among elderly women: Mediating role of physical activity. *Women's Health Bulletin*, *9*(2), 104-109. doi: 10.30476/whb.2022.94981.1174.

Afsanepurak, S. A., Bahram, A., Dana, A., Abdi. J. (2012). The effect of self-talk and mental imagery on self-efficacy in throwing darts in adolescents. *International Research Journal of Applied & Basic Sciences*, *3*(3), 594-600. https://ssrn.com/abstract=3947464.

American Psychological Association. (2014). *The Road to Resilience*. Washington, Dc: American Psychological Association.

Bandura, A. (1997). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, *84*, 191–215.

Chris, C., et al. (2010). Effects of yoga versus walking on mood, anxiety, and brain levels: A randomized controlled MRS study. *The Journal of Alternative and Complementary Medicine*, *16*(11), 1145-1152.

Conner, K. M., & Davidson, J. R. T. (2003). Development of a new Resilience scale: The Conner – Davidson Resilience Scale (CD-RISC). *Depression & Anxiety*, *18*, 76-82.

Dana, A., & Shams, A. (2019). The efficacy of brain cognitive rehabilitation interventions on executive functions in children with attention deficit hyperactivity disorder. *Neuropsychology*, *5*(18), 131-140. doi: 10.30473/clpsy.2020.46249.1440.

Dana, A., Ranjbari, S., Salehian, M. H., & Shayan Matin, P. (2021). Effects of Cognitive-Behavioral Therapy on Mental Health of High-School Students during COVID-19 Pandemic. *International Journal of School Health*, *8*(4), 201-208. doi: 10.30476/intjsh.2021.92100.1165.

Davidson, C. (2003). Development of a new resilience scale: The Connor Davidson resilience scale (CD-RISC). Journal of Depression and anxiety, 18, 76-82.

Ellis, N., Randall, J., & Punnett, G. (2013). The effects of a single bout of exercise on mood and self-esteem in clinically diagnosed mental health patients. *Open Journal of Medical Psychology*, *2*(3), 81-85. hdoi: 10.4236/ojmp.2013.23013.

Faircloth, A. L. (2017). Resilience as a mediator of the relationship between negative life events and psychological well-being. *Electronic Theses & Dissertations*, 1373.

Ghorbani, S., & Bund, A. (2017). Throwing skills: Analysis of movement phases in early motor learning. *Perceptual & Motor Skills*, *124*(2): 502-513. doi: 10.1177/00315125176899.

Ghorbani, S., & Bund, A. (2014). Acquisition a baseball-pitch through observation: What information is extracted? *American Journal of Sports Science & Medicine*, *2*(6A), 18-21. doi:10.12691/ajssm-2-6A-5.

Ghorbani, S., & Bund, A. (2016). Observational learning of a new motor skill: The effect of different model demonstrations. International Journal of Sports Science & Coaching, 11(4), 514-522. Doi:10.1177/1747954116655049.

Ghorbani, S., Ghanati, P., Dana, A., & Salehian, M. H. (2020). The effects of autonomy support on observational motor learning. *Iranian Journal of Learning and Memory*, *3*(11), 77-87. doi: 10.22034/iepa.2021.242953.1195.

Hartfiel, N., Havenhand, J., Khalsa, S., Clarke, G., & Krayer, A. (2011). The effectiveness of Yoga for the improvement of well-being and resilience to stress in the workplace. *Scandinavian Journal of Work, Environment & Health*, *37*(1): 70-76. doi: 10.5271/sjweh.2916.

Herrick, C., & Ainsworth, A. (2003). Invest in yourself: Yoga as a self-care strategy. *Nurs-Forum*, *35*(2), 32-36.

Jolivet, A., Caroly, S., Ehlinger, V., Kelly Irving, M., Delpierre, C., & Balducci, F. (2010). Linking hospital workers' organisational work environment to depressive symptoms: A mediating effect of effort–reward imbalance? The Orsosa study. *Social Science & Medicine*, *71*(3), 534-540. doi: 10.1016/j.socscimed.2010.04.003.

Khosravi, M., et al. (2023). Parenting styles, maladaptive coping styles, and disturbed eating attitudes and behaviors: a multiple mediation analysis in patients with feeding and eating disorders. *PeerJ*, *11*, e14880. doi: 10.7717/peerj.14880.

Lai, J., Ma, S., Wang, Y., Cai, Z., Hu, J., & Wei, N. (2020). Factors associated with mental health outcomes among health care workers exposed to Coronavirus disease 2019. *Jama Network Open*, *3*(3), E203976-E. doi: 10.1001%2Fjamanetworkopen.2020.3976.

Letvak, S., Ruhm, C., & Mccoy, T. (2012). Depression in hospital-employed nurses. *Clinical Nurse Specialist*, *26*(3), 177-182. doi: 10.1097/nur.0b013e3182503ef0.

Masten, A. (2001). Ordinary Magic: Resilience Processes in Development. *American Psychologist*, *56*(3), 227-38. doi: 10.1196/annals.1376.003.

Mikkelsen, K., Stojanovska, L., Polenakovic, M., Bosevski, M., & Apostolopoulos, V. (2017). Exercise and mental health. *National Library of Medicine*, *106*, 48-56. doi: 10.1016/j.maturitas.2017.09.003.

Moradi, J., Bahrami, A., & Dana, A. (2020). Motivation for participation in sports based on athletes in team and individual sports. *Physical Culture and Sport, Studies & Research*, *85*(1), 14–21. doi: 10.2478/pcssr-2020-0002.

Newhan, J. J., Clin, A. W., Hurley, J., Aplin, J. D., & Westwood, M. (2014), Effects of antenatal yoga on maternal anxiety and depression: A randomized controlled trial. *The Official Journal of ADAA*, *31*, 631-640.

Ohler, M., Forbes, D., & Kerr, M. (2010). Depression in nurses. *Canadian Journal of Nursing Research*, *42*(3), 66-82.

Ramachandra, P. U., Varambally, S., Philip, M., & Gangadhar, B. N. (2013), Effect of yoga therapy on anxiety and depressive symptoms and quality-of-life among caregivers of in-patients with neurological disorders at a tertiary care center in India: A randomized controlled trial. *Indian Journal of Psychiatry*, *55*(3), 385-389.

Sadeghipor, N., & Aghdam, B. H. (2021). Investigating the effect of appropriate personal protective equipment on the stress level of care workers in the Covid19 epidemic. Iran. *Health Science Journal*. *3*, 7. doi: 10.1027/MARCR.2021.0154.

Sadeghipor, N., & Aghdam, B. H. (2021). The effect of pesticides on child gender and the level of sexual activities in people exposed –Iran. *MAR Gynecology*, *1*(4). doi: 10.1027/MARGY.2021.0106.

Sadeghipor, N., Aghdam, B. H., & Kabiri, S. (2021). Evaluation of burnout and job stress in care worker and comparison between front-line and second line in care worker during coronavirus epidemic. *Health Science Journal*, *3*, 8. doi: 10.1027/MARCR.2021.0155.

Sadeghipor, N., Kabiri, S., & Aghdam, B. H. (2021). Investigating the pesticides impact on mental health of exposed workers – Iran. *MAR Case Reports*, *2*(6). doi: 10.1027/MARCR.2021.0164.

Sadeghpour, E., & Sangchini, E. K. (2020). Assessment and comparative study of job stress in Jam hospital jobs, Tehran city. *Health Science Journal*, *2*, 4. doi: 10.36648/1791-809X.S2.004.

Seyedi Asl, S. T., Rahnejat, A. M., Elikaee, M. M., Khademi, M., Shahed-HaghGhadam, H., & Taghva, A. (2021). The role of resilience, positive/negative emotions, and character strengths in predicting burnout of military personnel. *EBNESINA*, *22*(4), 4-13.

Seyedi-Asl, S. T., Sadeghi, K., Bakhtiari, M., Ahmadi, S. M., Nazari-Anamagh, A., & Khayatan, T. (2016). Effect of group positive psychotherapy on improvement of life satisfaction and the quality of life in infertile woman. *International Journal of Fertility & Sterility*, *10*(1), 105–112. Doi: 10. 22074/ijfs.2016.4775.

Taghva, A., Seyedi Asl, S. T., Rahnejat, A. M., & Elikaee, M. M. (2020). Resilience, emotions, and character strengths as predictors of job stress in military personnel. *Iranian Journal of Psychiatry & Behavioral Sciences*, *14*(2), e86477. doi: 10.5812/ijpbs.86477

Taso, C. J., Lin, H. S., Lin, W. L., Chen, S. M., Huang, W. T., & Chen, S. W. (2014). The effect of yoga exercise on improving depression, anxiety, and fatigue in woman with breast cancer: a randomized controlled trial. *The Journal of Nursing Research*, *22*(3), 155-164.

Ulger, O., & Yagli, N. V. (2010). Effects of yoga on the quality of life in cancer patients. *Complementary Therapies in Clinical Practice*, *16*(2), 60-63.

Vasconcelos, A., França, I; Coura, A., Enders, B., Cartaxo, H., & Sousa, F. (2013). Self-care in neurogenic intestine in subjects with spinal cord injury: An integrative review. *Online Brazilian Journal of Nursing*, *12*(4), 998-1010. doi: 10.5935/1676- 4285.20133692

Sharma, M. (2014). Yoga as an alternative and complementary approach for stress management: a systematic review. *Evidence-Based Complementary & Alternative Medicine*, *19*(1), 59-67. doi: 10.1177/2156587213503344.