

# Application of Benson Relaxation Therapy in the Nursing of Hemodialysis Patients

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**Abstract:** The definition intervention steps, mechanism of action of Benson relaxation therapy were summarized, and the effects and shortcomings of Benson relaxation therapy in the application of hemodialysis patients were summarized. It was expected to enrich the contents of Benson relaxation therapy, so as to provide reference for the research on the application of Benson relaxation therapy in our country's hemodialysis patients.

**Keywords:** Benson relaxation; Hemodialysis; Nursing; Review

## 1. Introduction

Chronic renal failure (CRF) is the outcome of various chronic kidney diseases (CKD) progressing to decompensation stage, and its main clinical manifestations are proteinuria, edema, hypertension, renal function injury, etc., which can cause anemia, hyperkalemia, metabolic acidosis, stroke and other complications in severe cases <sup>[1]</sup>.

Chronic kidney disease (CKD) has increasingly become an important factor endangering human health, with an internationally reported incidence of 300-350 per million population. According to the data of the World Health Organization in 2012, the number of deaths due to chronic kidney disease in the world reached 864,226, with a mortality rate of 1.5%, ranking 14th among the major causes of death in the world. According to the Health and Nutrition survey conducted by National Institute of Health of the United States from 1999 to 2004, the prevalence rate of chronic kidney disease (CKD) among people over 20 years old has reached 13%<sup>[2]</sup>. In China, the prevalence rate of chronic kidney disease (CKD) has reached 12.50%<sup>[3]</sup>, and chronic kidney disease (CKD) has become one of the major public health problems faced by China. Chronic renal failure will occur when chronic renal disease develops to decompensation stage. The incidence of chronic renal failure in normal population is about 1%-5%, and the incidence increases year by year. In the terminal stage of uremia, patients often need to undergo hemodialysis to maintain life <sup>[4]</sup>. Hemodialysis is an important treatment method for patients with end-stage renal failure to obtain nutrition and extend life <sup>[5]</sup>. Due to the disadvantages of hemodialysis, such as restricting patients' range of activities and long duration of treatment, it is easy to make patients suffer from tension, boredom, anxiety and other adverse emotions, which not only affects the therapeutic effect, but also limits the quality of life of patients <sup>[6]</sup>. In the treatment of hemodialysis patients, non-drug therapy, as a complementary therapy or alternative therapy, can also bring about improvement in a short time. Psychological intervention, exercise training and relaxation therapy are all commonly used non-drug treatment methods for dialysis patients <sup>[7]</sup>. Benson Relaxation Therapy (BRT) is a relaxation method that eases the stress response by relaxing and releasing muscles. Relaxation is a safe, easy to use, and cost effective training method. Benson relaxation therapy has been applied in the hemodialysis patients in Iran, and compared with foreign countries, less research has been carried out in our country.

## 2. Overview and mechanism of Benson relaxation therapy

### 2.1. Definition of Benson relaxation therapy

Benson relaxation therapy was first proposed by Dr. Herbert Benson in the 1970s. Benson relaxation

therapy is a relaxation therapy based on regular breathing, physical muscle relaxation, specific psychological devices and simple meditation, with simple and clear implementation steps <sup>[8]</sup>.

## **2.2. Intervention Procedure**

Benson relaxation therapy should be guided and trained by professionals, and the combination of group teaching and individual guidance should be adopted to ensure that patients are proficient in it. The main process of relaxation therapy includes the following aspects:

(1) Choose a comfortable position for the patient, with hands placed on both sides of the body naturally, so that the body is in a comfortable state and position;

(2) Patients close their eyes, wear the earmuffs provided by the nursing staff, adjust the appropriate volume, isolate other ward noise, try to eliminate noise, follow the guidance of audio instructions, relax according to the steps, breathing in the nose, breathing out the mouth, inhaling slowly when the mouth exhaled, the heart meditating inhaling, to achieve the effect of concentration;

(3) Patients need to consciously relax their bodies, adjust their mental state, and feel the relaxation of their body muscles. The overall order of body relaxation is from the bottom up, starting from the toes of the feet, then the ankles, the calves, the knees, the thighs, the hip joints, the hips, the abdomen, the forearms, the elbows, the arms, the shoulders, the neck, and the head, focusing on each part of the relaxation, focusing on feeling the muscles relax and contract;

(4) Repeat relaxing and contracting muscles for 15-20 minutes;

(5) After finishing, slowly open your eyes and keep lying for 2-3 minutes before getting up.

In the patient's relaxation training should choose a quiet environment, soft light indoor, patients can open their eyes to see the time, but can not use the alarm, so as not to interrupt the patient's training, affect the patient's relaxation training.

## **2.3. Mechanism of Benson relaxation therapy**

The core of the physiological mechanism of the technology is the relaxation response of the human body. Benson relaxation therapy reduces the activity of the sympathetic nervous system and the secretion of catecholamine by regulating the hypothalamus and posterior function, reduces muscle tone, which in turn reduces blood pressure, stabilizes breathing and lowers heart rate, and changes the nervous response of the body and emotion to stress. Studies have shown that in the absence of preparatory hyperventilation and other therapeutic activities, oxygen consumption during the relaxation response decreases significantly, and the body state of deep rest can be achieved <sup>[8]</sup>. Benson's relaxation technique has two core ideas: a specific mental device, such as a simple syllable or word, that is repeated to focus the patient's attention and clear away distracting thoughts; The second is to maintain a passive attitude. A peaceful and accepting attitude can activate the parasympathetic nervous system and enable patients to relax <sup>[9]</sup>. Benson relaxation technique can reduce pressure, relieve pain, improve anxiety and other negative emotions and improve sleep quality by affecting both physical and psychological levels. It can also improve patients' attention, declarative memory and psychological efficacy, and have a positive impact on patients' quality of life <sup>[10]</sup>.

## **3. Effect of Benson relaxation therapy on hemodialysis patients**

### **3.1. Improve biomedical markers and enhance immunity**

Hemodialysis is a complex dialysis method, which requires restriction of diet and fluid intake, and requires a variety of drugs <sup>[11]</sup>. Adherence to a hemodialysis regimen is difficult for many patients. It has been reported that a large proportion of such patients have chronic volume overload before hemodialysis, which leads to a more than two-fold increase in the risk of death <sup>[12]</sup>. In addition, patients may experience convulsions due to failure to limit potassium levels; Failure to restrict phosphate results in pruritus and bone pain. Excessive sodium and water intake may lead to weight gain, hypertension, peripheral edema, pulmonary edema and dyspnea <sup>[13]</sup>. Due to electrolyte imbalance and other factors, dialysis patients often suffer from pain, weakness, muscle weakness and other symptoms, which affect patients' quality of life <sup>[14]</sup>.

However, Benson relaxation therapy can improve biomedical markers to some extent <sup>[15]</sup>. Nilofar

Pasyar<sup>[15]</sup> et al. randomly divided 86 hemodialysis patients into intervention group and control group. The intervention group received Benson relaxation therapy, and the patients received Benson relaxation therapy training twice a day for 20 minutes each time for 8 weeks, while the control group took routine nursing. The research results showed that during relaxation therapy. The levels of blood urea nitrogen (BUN), phosphate (PO<sub>4</sub>), blood glucose (BS) and white blood cell count (WBC) were changed. The influence of Benson relaxation therapy on biomedical markers was unclear. Nilofar Pasyar believed that Benson relaxation therapy seemed to affect the body's metabolism and physiology, and improve hemodynamic function. In addition, mental and physical relaxation, reduced systolic blood pressure<sup>[16]</sup>, diastolic blood pressure<sup>[17]</sup>, anxiety and stress<sup>[18]</sup>, and increased adherence to treatment regimens. These processes may ultimately regulate biomedical markers. The level of white blood cell count changes during relaxation therapy, which is consistent with the results of related studies<sup>[19]</sup>. Benson relaxation therapy contributes to natural killer cell activity, lymphocyte proliferation, interleukin-4 and interleukin-10, and more Benson relaxation therapy leads to higher immune response<sup>[20]</sup>.

### **3.2. Reduce patients' pain and improve their quality of life**

One of the most common problems in patients with hemodialysis (HD) is chronic pain<sup>[21]</sup>, and more than 50% of ESRD patients suffer from pain<sup>[22]</sup>. In fact, most hemodialysis patients have moderate to severe pain, and 54% of hemodialysis patients have pain in more than one site [20]. Patients with end-stage renal disease may suffer pain in many ways that are not only specific to the disease, but also specific to the treatment. Renal osteodystrophy, peripheral neuropathy, dialysis-associated joint disease, dialysis imbalance syndrome, dialysis headache, and muscle spasm during or after hemodialysis are common causes of pain in hemodialysis patients<sup>[23]</sup>. The experience of pain is associated with a number of immediate and long-term negative outcomes<sup>[24]</sup>. In addition, there was a significant correlation between mortality and pain frequency and intensity in hemodialysis patients who did not receive dialysis<sup>[25]</sup>. Disabling symptoms<sup>[26]</sup>, depression, insomnia, severe irritability, anxiety, and inability to cope with stress are more common in hemodialysis patients with pain than in patients without pain<sup>[27]</sup>. In addition, patients with chronic pain may experience high levels of disability, pain and social burden<sup>[28]</sup>. In general, chronic pain affects the quality of life of hemodialysis patients (QOL)<sup>[29]</sup>. And Benson relaxation therapy had a positive effect on pain caused by hemodialysis. In a study conducted at the Gonabad University of Medical Sciences, Baloochi et al. investigated the effect of muscle relaxation therapy on hemodialysis pain<sup>[30]</sup>. A clinical trial of 84 hemodialysis patients showed that Benson relaxation therapy reduced pain; Patients in the control group had pain levels of 11-25 and 9-33 before and after the intervention, respectively, and were evaluated by McGill pain questionnaire. On the other hand, the pain degree of the normal preconditioning group before and after intervention was 9-33 and 6-27, respectively, and the pain degree of the intervention group was significantly reduced. Most importantly, it is practical and operable at any time and place. This method can be used as a non-drug treatment with other methods to reduce pain, reduce drug consumption related to increased costs and side effects of patients and hospitals, and improve self-care and self-management ability<sup>[31]</sup>.

### **3.3. Improve anxiety and patients' quality of life**

Hemodialysis is the preferred renal replacement therapy for patients with chronic renal failure, which can selectively exclude toxic substances in the blood from the body, so as to improve the physiological indicators of patients and maintain their lives<sup>[32]</sup>. However, long-term hemodialysis treatment not only causes physical discomfort to patients, but also leads to changes in their living habits, loss of social relations and social support, resulting in the incidence of anxiety of patients as high as 75% and seriously reducing the quality of life of patients<sup>[33]</sup>. Abu Maloh waiting for Benson relaxation therapy in hemodialysis patients randomized controlled trial conducted a systematic review of anxiety<sup>[34]</sup>. Databases searched from January 2000 to September 2020 included EBSCO Host, PubMed, ProQuest, Science Direct, Sage Journals, Ovid, Google Scholar. Five randomized controlled trials were identified. Four randomized controlled trials<sup>[35-38]</sup> measuring anxiety have shown the effectiveness of Benson relaxation therapy in reducing anxiety in hemodialysis patients (Heidari Gorjietal, 2014; Kiani et al., 2017; Mahdavi et al., 2013; Otaghi et al., 2016). Regarding the results of these four RCTS, two RCTS showed significant differences in anxiety scores in two time frames before and after the intervention ( $p < 0.01$ ) (Heidari Gorjietai, 2014; Mahdavi et al., 2013). A randomized controlled trial showed significant differences in implicit, explicit, and total anxiety scores after intervention ( $p = 0.001$ ) (Kianietal, 2017). Finally, a randomized controlled trial showed that anxiety scores were significantly lower immediately after intervention, after 2 weeks, and after 1 and 2 months ( $p < 0.05$ ) (Otaghi et al., 2016). Although randomized controlled trials have shown benefits of Benson relaxation therapy as a nursing intervention

in managing anxiety in hemodialysis patients, three randomized controlled trials [35,36,38] measuring the efficacy of depression have shown mixed results (Heshmatifar et al., 2015; Mahdavi et al., 2013; Otaghi et al.,2016).A randomized controlled trial showed a significant difference in reducing depression levels after intervention ( $p = 0.01$ )(Heshmatifar et al., Kim Geoks 2015). In contrast, two randomized controlled trials showed no significant difference (Mahdavi and Dimaib etal 2013; Otaghi et al.,2016). The first randomized controlled trial showed no significant difference in depression levels between the experimental groups within two time frames before and after intervention ( $p >0.22$ )(Mahdavietal,2013). Abstract: A second randomized controlled trial showed no significant differences in depression levels immediately after intervention, after 2 weeks, and after 1 and 2 months ( $p >0.05$ )(Otaghi et al.,2016).Unlike the effect on anxiety, there is a lack of high-quality scientific evidence supporting the efficacy of Benson relaxation therapy for depression in hemodialysis patients. Therefore, additional well-designed randomized controlled trials are needed to support the efficacy of Benson relaxation therapy for depression in hemodialysis patients.

#### 4. There are deficiencies in the current research

##### 4.1. Lack of large sample randomized controlled trials

The sample size of applied studies in hemodialysis patients is small, and the lack of large sample randomized controlled experiments results in lower credibility and lack of persuasion, which is not conducive to the application and development of Benson relaxation therapy in hemodialysis patients. Therefore, more high-quality, large-sample randomized controlled trials are needed to study the efficacy of Benson relaxation therapy in hemodialysis patients.

##### 4.2. The optimal intervention period is not clear

At present, there are few studies on the application of Benson relaxation therapy in hemodialysis patients in China, and the intervention cycle is short with reference to foreign countries. Moreover, there is a lack of observation on the long-term effect of Benson relaxation therapy on hemodialysis patients, so it is difficult to determine the optimal intervention time. Therefore, it is suggested to further explore the optimal intervention time of Benson relaxation therapy for hemodialysis patients in future studies.

#### 5. Conclusions

Benson relaxation therapy is a safe, convenient and inexpensive non-drug intervention. Benson relaxation therapy can relieve pain and anxiety of hemodialysis patients to some extent, improve hemodynamics of patients, and improve immunity of patients to some extent. Benson relaxation therapy is of great significance for hemodialysis. However, the current literature still has some limitations, such as small sample studies, short intervention time, lack of large sample randomized controlled experiments, etc. Therefore, scholars at home and abroad still need to continue to explore and improve the application effect of Benson relaxation therapy in hemodialysis patients, combined with different cultural characteristics, to optimize Benson relaxation therapy, not only has high social and economic benefits, but also can promote the long-term development of Benson relaxation therapy in the treatment of hemodialysis patients. Existing studies have been published, which support Benson relaxation therapy as a safe and low-cost method to treat various chronic diseases. Therefore, the scope of research and applicable population should be further expanded in future studies to improve the effectiveness and applicability of Benson relaxation therapy.

#### References

- [1] Wu M, Ling PL, Ye ZY. Research progress of vascular calcification in chronic kidney disease [J]. Chinese Journal of Blood Purification. 2018, 17(06):361-365. doi: 10. 3969/j. issn. 1671-4091. 2018. 06. 001.
- [2] Coresh, J., Selvin, E., Stevens, L. A., Manzi, J., Kusek, J. W., Eggers, P., Van Lente, F., & Levey, A. S. (2007). Prevalence of chronic kidney disease in the United States. JAMA, 298(17), 2038–2047. doi: 10. 1001/jama. 298. 17. 2038.
- [3] Hu YY, Zhang Y. Clinical research progress on the interaction between chronic kidney disease and low T3 syndrome [J]. Chinese Journal of Integrated Traditiona. 2019, 20(02): 173-175. doi: 10. 3969/

j. issn. 1009-587X. 2019. 02. 031.

- [4] Wang L. Effect of continuous nursing on negative emotions and treatment compliance of hemodialysis patients with chronic renal failure[J]. *Medical Journal of Chinese People's Health*. 2020, 32(06):148-150. doi:10. 3969/j. issn. 1672-0369. 2020. 06. 062.
- [5] Liu Y. Effect of collaborative nursing intervention on calcium and phosphorus metabolism and negative psychology of maintenance hemodialysis patients[J]. *Guide of China Medicine*. 2021, 19(07):164-165. doi:10. 15912/j. cnki. gocm. 2021. 07. 081
- [6] Wang J, Zheng Y. Effect of continuous nursing intervention on nutritional status and nursing service satisfaction of uremic maintenance hemodialysis patients on WeChat platform[J]. *Clinical Medical Engineering*. 2020, 27(12):1661-1662. doi:10. 3969/j. issn. 1674-4659. 2020. 12. 1661.
- [7] Siebern, A. T., Suh, S., & Nowakowski, S. (2012). Non-pharmacological treatment of insomnia. *Neurotherapeutics: the journal of the American Society for Experimental Neuro Therapeutics*, 9(4), 717–727. doi:10. 1007/s13311-012-0142-9
- [8] Benson, H., Beary, J. F., & Carol, M. P. (1974). The relaxation response. *Psychiatry*, 37(1), 37–46. doi:10. 1080/00332747. 1974. 11023785
- [9] Benson H. (1989). Hypnosis and the relaxation response. *Gastroenterology*, 96(6), 1609–1611. doi:10. 1016/0016-5085(89)90536-2
- [10] Galvin, J. A., Benson, H., Deckro, G. R., Frichione, G. L., & Dusek, J. A. (2006). The relaxation response: reducing stress and improving cognition in healthy aging adults. *Complementary therapies in clinical practice*, 12(3), 186–191. doi:10. 1016/j. ctc. 2006. 02. 004
- [11] Bayoumi, M., Al Harbi, A., Al Suwaida, A., Al Ghonaim, M., Al Wakeel, J., & Mishkiry, A. (2013). Predictors of quality of life in hemodialysis patients. *Saudi journal of kidney diseases and transplantation : an official publication of the Saudi Center for Organ Transplantation, Saudi Arabia*, 24(2), 254–259. doi:10. 4103/1319-2442. 109566
- [12] Hecking, M., Karaboyas, A., Antlanger, M., Saran, R., Wizemann, V., Chazot, C., Rayner, H., Hörl, W. H., Pisoni, R. L., Robinson, B. M., Sunder-Plassmann, G., Moissl, U., Kotanko, P., Levin, N. W., Säemann, M. D., Kalantar-Zadeh, K., Port, F. K., & Wabel, P. (2013). Significance of interdialytic weight gain versus chronic volume overload: consensus opinion. *American journal of nephrology*, 38(1), 78–90. doi:10. 1159/000353104
- [13] Durose, C. L., Holdsworth, M., Watson, V., & Przygodzka, F. (2004). Knowledge of dietary restrictions and the medical consequences of noncompliance by patients on hemodialysis are not predictive of dietary compliance. *Journal of the American Dietetic Association*, 104(1), 35–41. doi:10. 1016/j. jada. 2003. 10. 016
- [14] Yurtkuran, M., Alp, A., Yurtkuran, M., & Dilek, K. (2007). A modified yoga-based exercise program in hemodialysis patients: a randomized controlled study. *Complementary therapies in medicine*, 15(3), 164–171. doi:10. 1016/j. ctim. 2006. 06. 008
- [15] Pasyar, N., Rambod, M., Sharif, F., Rafii, F., & Pourali-Mohammadi, N. (2015). Improving adherence and biomedical markers in hemodialysis patients: the effects of relaxation therapy. *Complementary therapies in medicine*, 23(1), 38–45. doi:10. 1016/j. ctim. 2014. 10. 011
- [16] Yu, D. S., Lee, D. T., & Woo, J. (2010). Improving health-related quality of life of patients with chronic heart failure: effects of relaxation therapy. *Journal of advanced nursing*, 66(2), 392–403. doi:10. 1111/j. 1365-2648. 2009. 05198. x
- [17] Tang, H. Y., Harms, V., Speck, S. M., Vezeau, T., & Jesurum, J. T. (2009). Effects of audio relaxation programs for blood pressure reduction in older adults. *European journal of cardiovascular nursing*, 8(5), 329–336. doi:10. 1016/j. ejcnurse. 2009. 06. 001
- [18] Mahdavi, A., Gorji, M. A., Gorji, A. M., Yazdani, J., & Ardebil, M. D. (2013). Implementing Benson's Relaxation Training in Hemodialysis Patients: Changes in Perceived Stress, Anxiety, and Depression. *North American journal of medical sciences*, 5(9), 536–540. doi:10. 4103/1947-2714. 118917
- [19] McGrady, A., Conran, P., Dickey, D., Garman, D., Farris, E., & Schumann-Brzezinski, C. (1992). The effects of biofeedback-assisted relaxation on cell-mediated immunity, cortisol, and white blood cell count in healthy adult subjects. *Journal of behavioral medicine*, 15(4), 343–354. doi: 10. 1007/BF00844727
- [20] Kang, D. H., McArdle, T., Park, N. J., Weaver, M. T., Smith, B., & Carpenter, J. (2011). Dose effects of relaxation practice on immune responses in women newly diagnosed with breast cancer: an exploratory study. *Oncology nursing forum*, 38(3), E240–E252. doi:10. 1188/11. ONF. E240-E252
- [21] Masajtis-Zagajewska, A., Pietrasik, P., Krawczyk, J., Krakowska, M., Jarzębski, T., Pietrasiewicz, B., Zbróg, Z., & Nowicki, M. (2011). Similar prevalence but different characteristics of pain in kidney transplant recipients and chronic hemodialysis patients. *Clinical transplantation*, 25(2), E144–E151. doi:10. 1111/j. 1399-0012. 2010. 01359. x

- [22] Innis J. (2006). Pain assessment and management for a dialysis patient with diabetic peripheral neuropathy. *CANNT journal = Journal ACITN*, 16(2), 12–28.
- [23] Shayamsunder, A. K., Patel, S. S., Jain, V., Peterson, R. A., & Kimmel, P. L. (2005). Sleepiness, sleeplessness, and pain in end-stage renal disease: distressing symptoms for patients. *Seminars in dialysis*, 18(2), 109–118. doi:10.1111/j.1525-139X.2005.18218.x
- [24] Alhani F. (2010). The effect of programmed distraction on the pain caused by venipuncture among adolescents on hemodialysis. *Pain management nursing: official journal of the American Society of Pain Management Nurses*, 11(2), 85–91. doi:10.1016/j.pmn.2009.03.005
- [25] Harris, T. J., Nazir, R., Khetpal, P., Peterson, R. A., Chava, P., Patel, S. S., & Kimmel, P. L. (2012). Pain, sleep disturbance and survival in hemodialysis patients. *Nephrology, dialysis, transplantation: official publication of the European Dialysis and Transplant Association - European Renal Association*, 27(2), 758–765. doi:10.1093/ndt/gfr355
- [26] Nayak-Rao S. (2011). Achieving effective pain relief in patients with chronic kidney disease: a review of analgesics in renal failure. *Journal of nephrology*, 24(1), 35–40. doi:10.5301/jn.2010.1330
- [27] Davison, S. N., & Jhangri, G. S. (2005). The impact of chronic pain on depression, sleep, and the desire to withdraw from dialysis in hemodialysis patients. *Journal of pain and symptom management*, 30(5), 465–473. doi:10.1016/j.jpainsymman.2005.05.013
- [28] Breivik, H., Collett, B., Ventafridda, V., Cohen, R., & Gallacher, D. (2006). Survey of chronic pain in Europe: prevalence, impact on daily life, and treatment. *European journal of pain (London, England)*, 10(4), 287–333. doi:10.1016/j.ejpain.2005.06.009
- [29] Gómez Alonso J. F. (2010). Dolor y sufrimiento. El discurso del enfermo renal sometido a diálisis [Pain and suffering; commentaries by patients who undergo kidney dialysis]. *Revista de enfermería (Barcelona, Spain)*, 33(6), 32–38.
- [30] Baloochi BT, Kianmehr M, Tavakolizadeh J, Basiri MM, Biabani F. Effect of muscle relaxation on hemodialysis patients' pain. *Quart Horizon Med Sci*. 2015;21:75-80.
- [31] Barabady, A., Baghdassarians, A., Mema, E., Yazdani, A., Barabady, A., & Sayadi, S. (2020). Effect of Benson's Relaxation Technique on Propofol Consumption and Preoperative Anxiety of Patients Undergoing Cataract Surgery. *Anesthesiology and pain medicine*, 10(3), e100703. doi:10.5812/aapm.100703
- [32] Xiao j. Effect of continuous nursing on curative effect and quality of life of hemodialysis patients with renal failure[J]. *Nursing Practice and Research*. 2018, 15(19):27-29. doi:10.3969/j.issn.1672-9676.2018.19.012.
- [33] Mai SH. Effect of peer-to-peer health education on anxiety and health knowledge of female menopausal hemodialysis patients [J]. *Maternal and Child Health Care of China*. 2018, 33(16):3734-3737.
- [34] Abu Maloh, H. I. A., Soh, K. L., AbuRuz, M. E., Chong, S. C., Ismail, S. I. F., Soh, K. G., & Abu Maloh, D. I. (2022). Efficacy of Benson's Relaxation Technique on Anxiety and Depression among Patients Undergoing Hemodialysis: A Systematic Review. *Clinical nursing research*, 31(1), 122–135. doi:10.1177/10547738211024797
- [35] Otaghi, M., Borji, M., Bastami, S., & Solymanian, L. (2017). The Effect of Benson's Relaxation on depression, anxiety and stress in patients undergoing hemodialysis.
- [36] Mahdavi, A., Gorji, M. A., Gorji, A. M., Yazdani, J., & Ardebil, M. D. (2013). Implementing Benson's Relaxation Training in Hemodialysis Patients: Changes in Perceived Stress, Anxiety, and Depression. *North American journal of medical sciences*, 5(9), 536–540. doi: 10.4103/1947-2714.118917
- [37] Kiani, F., Zadeh, M. A. H., & Shahrakipour, M. (2017). The effect of Benson's relaxation method on hemodialysis patients' anxiety. *Biomedical Research (India)*, 28(3), 1075-1080.
- [38] Heidari Gorji, M. A., Davanloo, A. A., & Heidarigorji, A. M. (2014). The efficacy of relaxation training on stress, anxiety, and pain perception in hemodialysis patients. *Indian journal of nephrology*, 24(6), 356–361. doi:10.4103/0971-4065.132998